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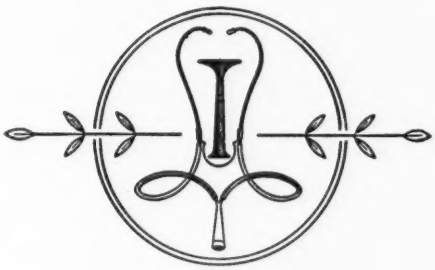

CONFUSION IN DIFFERENTIATION OF HEART MURMURS AND SOUNDS—Arthur L. Smith, M.D., Lincoln, Nebraska . . . . . Page 457

ACTIVE TREATMENT OF TUBERCULOUS PULMONARY CAVITIES BY SURGERY—J. Emerson Dailey, M.D., Houston, Texas . . . . . Page 462

UNDULANT FEVER—Ragnar T. Westman, M.D., Kansas City, Kansas . . . . . Page 468

ADRENAL CORTEX CARCINOMA—Albert J. Rettenmaier, M.D., Max S. Allen, M.D., Kansas City, Kansas, and Eugene D. Liddy, M. D., Lawrence, Kansas . . . . . Page 471

CLINICAL OBSERVATIONS ON THE USE OF DEPROTEINATED PANCREATIC TISSUE EXTRACT IN SURGICAL AND ROUTINE CATHETERIZATION—H. E. Neptune, M.D., Salina, Kansas . . . . . Page 474

THE ACUTE STAPHYLOCOCCAL INFECTIONS OF THE KIDNEY—W. G. Gordon, M.D., Kansas City, Kansas . . . . . Page 478

COMPLETE TABLE OF CONTENTS . . . . . Page IV

VOLUME XLII November, 1941 NUMBER 11

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TABLE OF CONTENTS

NOVEMBER, 1941

ORIGINAL ARTICLES

Confusion in Differentiation of Heart Murmurs and Sounds—Arthur L. Smith, M.D., Lincoln, Nebraska 457

Active Treatment of Tuberculous Pulmonary Cavities by Surgery — J. Emerson Dailey, M.D., Houston, Texas 462

Undulant Fever — Ragnar T. Westman, M.D., Kansas City, Kansas 468

Adrenal Cortex Carcinoma—Albert J. Rettenmaier, M.D., Max S. Allen, M.D., Kansas, and Eugene D. Liddy, M.D., Lawrence, Kansas 471

Clinical Observations on the Use of Deproteinated Pancreatic Tissue Extract in Surgical and Routine Catheterization—H. E. Neptune, M.D., Salina, Kansas . 474

The Acute Staphylococcal Infections of the Kidney—W. G. Gordon, M.D., Kansas City, Kansas 478

EDITORIALS

The Doctor and His State Medical Journal . 477

Are We Healthy? 477

MISCELLANEOUS

President's Page 476

Tuberculosis Control 482

News Notes 484

Book Nook 492

Auxiliary 498

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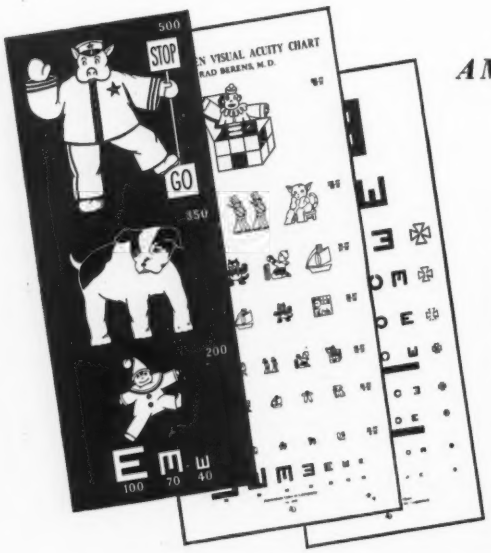

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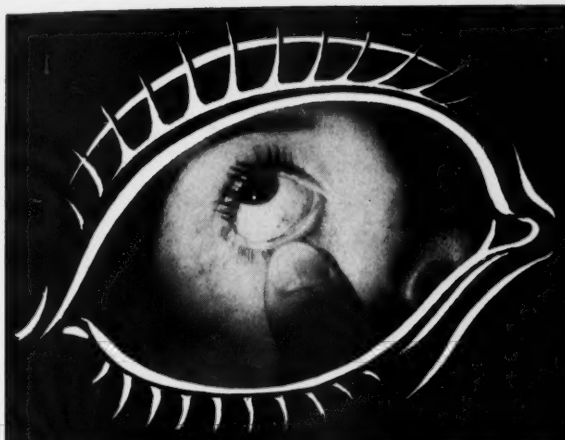

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So he promptly followed his friend's suggestion and took a cathartic. And in a matter of hours he was being rushed by ambulance to the hospital . . . with a ruptured appendix.

His friend, of course, had acted from the kindest of motives. But he didn't know that an abdominal pain might mean acute appendicitis, in which case a cathartic should never be taken.

Unfortunately, appendicitis is only one of many illnesses where amateur medical advice can result in tragedy. Yet, human nature being what it is, many people just can't resist the temptation to offer advice when a friend is sick.

Intelligent medical treatment depends upon various factors which only a physician is qualified to evaluate. When something seems wrong with you, it is the part of wisdom to observe this common-sense rule: Take a friend's advice about buying a radio, a car, or even a home if you wish; but don't let him advise you about your health.

Don't let a friend who *means* well tell you how to *get* well. To get well, and *keep* well, the man to see is your physician.

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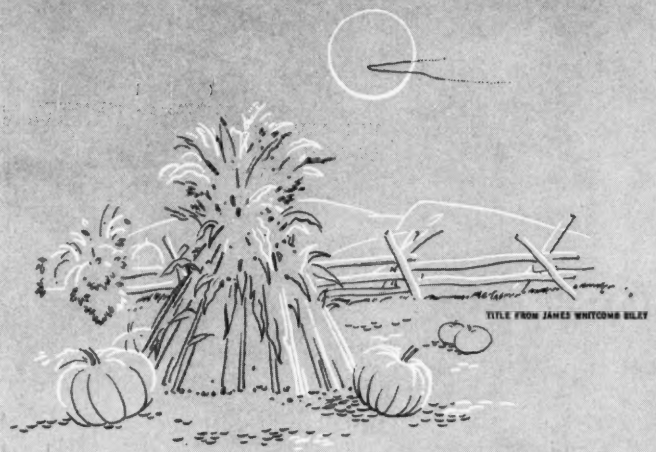

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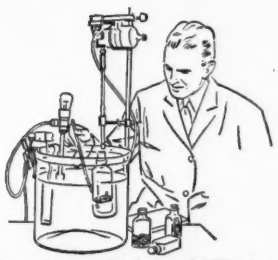

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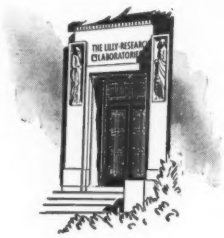

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CONFUSION IN DIFFERENTIATION OF HEART MURMURS AND SOUNDS*

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Lincoln, Nebraska

WHY AMPLIFY AND RECORD HEART SOUNDS?

There is nothing as fleeting or undependable as the human memory. Therefore, any method that can make permanent records of any essential bodily function, which at present can be preserved only by the human memory, should be welcomed by the medical profession.

For example, the examining physician's impression of the many peculiarities of heart sounds—normal or abnormal—cannot long be accurately retained. Therefore, if it is of clinical value to know the exact condition of these sounds at the time of examination, then of how much more value would it be if the heart sounds were recorded for future reproduction and comparison with later changes in the same heart? Also, if accurate knowledge of heart sounds is advisable, we should be prepared to collect this information by any devisable means.

While practice may increase the acuity of the ear, the prestige of all clinicians suffers greatly when their heart sound conclusions are compared with the accurate recordings of recently developed sensitive instruments.

We do not auscultate a heart to hear murmurs only but also to know the rate and type of rhythm or arrhythmia; intensity, duration and accentuation of the heart sounds; absence of one or both sounds; extra normal and abnormal sounds as, systolic clicks, mitral opening snaps, third and fourth sounds and reduplication of sounds; systolic, protodiastolic, presystolic, and summation gallop rhythm; duration of the systolic and diastolic silences; pericardial friction rubs; and differentiation of sounds from various types of murmurs which are of functional or organic origin. The point of origin of heart sounds cannot always be accurately located by the area in which they are best heard on the surface of the chest. The combinations of these sounds are often so bewildering it is impossible to differentiate them without graphic registration and measurements or by amplification and disc recording.

Thus, to the detriment of the patient, confusion of sounds of harmless and pathologic origin results. However, these latter subjects cannot be dealt with in this article for it would be unduly prolonged.

The reasons (singly or combined) many heart sounds cannot be clearly heard by the unaided ear are: (1) the frequencies of the sounds are too low; (2) the energy liberated is too small; (3) the chest wall is too thick; (4) the heart rate is too fast; (5) noises inside or outside the chest are too great or (6) the human ear is not sensitive enough. The common stethoscope seems to be of little value in overcoming these difficulties.

Since most of us use a stethoscope there must be some reasons for so doing, such as: (1) the heart sounds are amplified and more clearly heard; (2) the examiner appears less awkward and more at ease than when listening with the unaided ear or (3) the physician wishes to make an impression on the laity with this "movie" symbol of medicine.

However, some believe the stethoscope and amplification of heart sounds are unnecessary and that the former reduces the efficiency of the ear, but they admit the accurate knowledge of heart sounds is of clinical value and the crystal microphone is free from distortion.

Since the discovery of the crystal microphone much advanced knowledge of heart sounds is possible by the following means: (1) the stethograph or phonocardiograph which makes permanent measurable records of heart sounds by means of photography or ink recordings (these are made by several companies in the United States); (2) the lag screen belt method, which was invented and made clinically useful by Asher and Hoecker,[1] visualizes heart sounds on a phosphorescent screen (this instrument is being widely used); (3) the cardiophone amplifies the heart sounds so they may be distinctly heard by the average ear through the loudspeaker or electrical

*Presented at the 82nd Annual Session of The Kansas State Medical Society, Topeka, May 13, 1941.

stethoscope and; (4) the cardiophonograph, which I have developed,[2-3] accurately records the heart sounds and these may be reproduced at leisure at various rates, intensities and frequencies for careful analysis. These records (1 and 4), like electrocardiograms and roentgrams of the heart, can be preserved for future reference and comparison.

Fetal heart sounds have been recorded by the author[4] in fifty-two cases and among these was one with a systolic murmur which was also found after delivery.

Since murmurs do not suddenly burst into full audible bloom without a budding stage, it is known the sub-audible murmurs can be discovered by these methods, treatment for the underlying lesion can be instituted earlier and a more favorable outcome should be expected.

DIFFERENTIATION OF MURMURS FROM OTHER HEART SOUNDS

Murmurs, as a rule, are of longer duration and greater frequency than other sounds originating in the heart.

The reduplicated first sounds are short and sharp and are usually of the same intensity and duration.

The systolic click is of short duration, it appears in varying parts of systole and is really a clicking sound.

The reduplicated second sounds vary in distance apart, but are of like characteristics.

The third sound, later in diastole, is dull, of low frequency and of low intensity.

The mitral snap appears only in mitral stenosis and its position in diastole is just anterior to that of the third sound.

The fourth sound (the auricular portion of the first sound) is found in diastole from just anterior to the first sound to any position following the second sound. It is usually softer than the two heart sounds.

Gallop rhythm, which resembles the gallop of a horse, is composed of the two heart sounds and either the third or fourth. These two latter may be superimposed. Oftentimes these sounds can be best heard near the point at which they originate but this does not always hold true.

Depending upon the skill of the examiner these sounds can often be differentiated but they can always be identified by means of the cardiac instruments already mentioned.

The differentiation of functional murmurs from those due to organic changes is not so easy. Most of the former are heard during systole and few during diastole. The functional is not usually referred very far from its point of origin, is softer and does not change the shape of the heart.

Diseases which produce these murmurs as, hyperthyroidism, anemia, nervousness, malnutrition, etc., can easily be discovered and when corrected the murmur disappears.

The murmur of organic origin in systole is usually coarse and louder and referred to greater distances. Those murmurs found in diastole are nearly always due to valve or valve ring changes and are usually soft. With valve destruction the heart will sooner or later assume a different shape—such as mitral or aortic configuration — depending upon the part which bears the increased amount of work.

ARE MURMURS A DISEASE?

The reason for discussing this subject today is with the hope of preventing; (1) the pernicious habit of condemning many who have functional heart murmurs to some form of unnecessary medication and instilling into their minds the unremovable fear of heart disease; (2) the mistake of calling extra heart sounds serious heart abnormalities, as third and fourth sounds, split first and second sounds, systolic clicks, many gallop rhythms, pericardial friction sounds, lung sounds, etc.; (3) the unnecessary retirement of many with actual valvular deformities to a life of invalidism and unproductiveness.

A murmur at no time is a disease but may be caused by a diseased valve which passed through its active course in childhood. Therefore, if we wish to see adult rheumatic heart disease in the making it is to the child we must go and carefully follow the destructive progress of an unknown organism after it invades the blood stream and sets up an inflammatory reaction in the small arterioles in various parts of the young body—a disease which we call rheumatic fever. When we think of rheumatic fever a picture of joint inflammation is the dominating

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Fig. 1. Over mitral area. Functional murmur. Very short protosystolic (S) murmur. Fig. 2. Over mitral area. Mitral regurgitation. Systolic murmur (S) starts in mid systole, is louder at first and gradually decreases in intensity. Fig. 3. Over mitral area. Mitral regurgitation and stenosis. Protosystolic (S) murmur, loud and short. Soft diastolic (D) murmur. Fig. 4. Over mitral area. Mitral regurgitation. Systolic (S) murmur starts immediately after the first (1) sound and gradually decreases in intensity. Split second (2 2) sound. Fig. 5. Over mitral area. Mitral regurgitation. Fourth (4) sound. Loud systolic (S) murmur in the middle of systole which fades out before the second (2) sound. Fig. 6. Over mitral area. Mitral stenosis. Split second (2 2) sound. Diastolic (D) murmur, decreases and then increases in intensity. Fig. 7. Over mitral area. Mitral stenosis. Diastolic (D) murmur continues throughout diastole when this period is short, but fades out when it is longer. Auricular fibrillation. Fig. 8. Over mitral area. Mitral stenosis. Short presystolic (PS) murmur, crescendo in type. Fig. 9. Over mitral area. Fourth (4) sound which is often mistaken for a presystolic murmur. When auricular extrasystole (p/x) appears, the first sound is greatly widened. Fig. 10. Over aortic area. Aortic stenosis. Short protosystolic (S) murmur. Split second (2 2) sound. Fig. 11. Over aortic area. Aortic stenosis. Systolic (S) murmur, loud at first. Begins immediately after the first (1) sound and fades out before the second (2) sound. Fig. 12. Over aortic area. Aortic stenosis. Systolic (S) murmur, loudest in the mid systolic area. Fig. 13. Over aortic area. Aortic stenosis. Systolic (S) murmur, short period of silence after the first (1) sound, then very intense and fading out somewhat before the second (2) sound. Fig. 14. Over aortic area. Aortic stenosis and regurgitation. Murmur (S) in the first half of systole. The diastolic (D) murmur is louder in the first half and fades out before the first (1) sound.

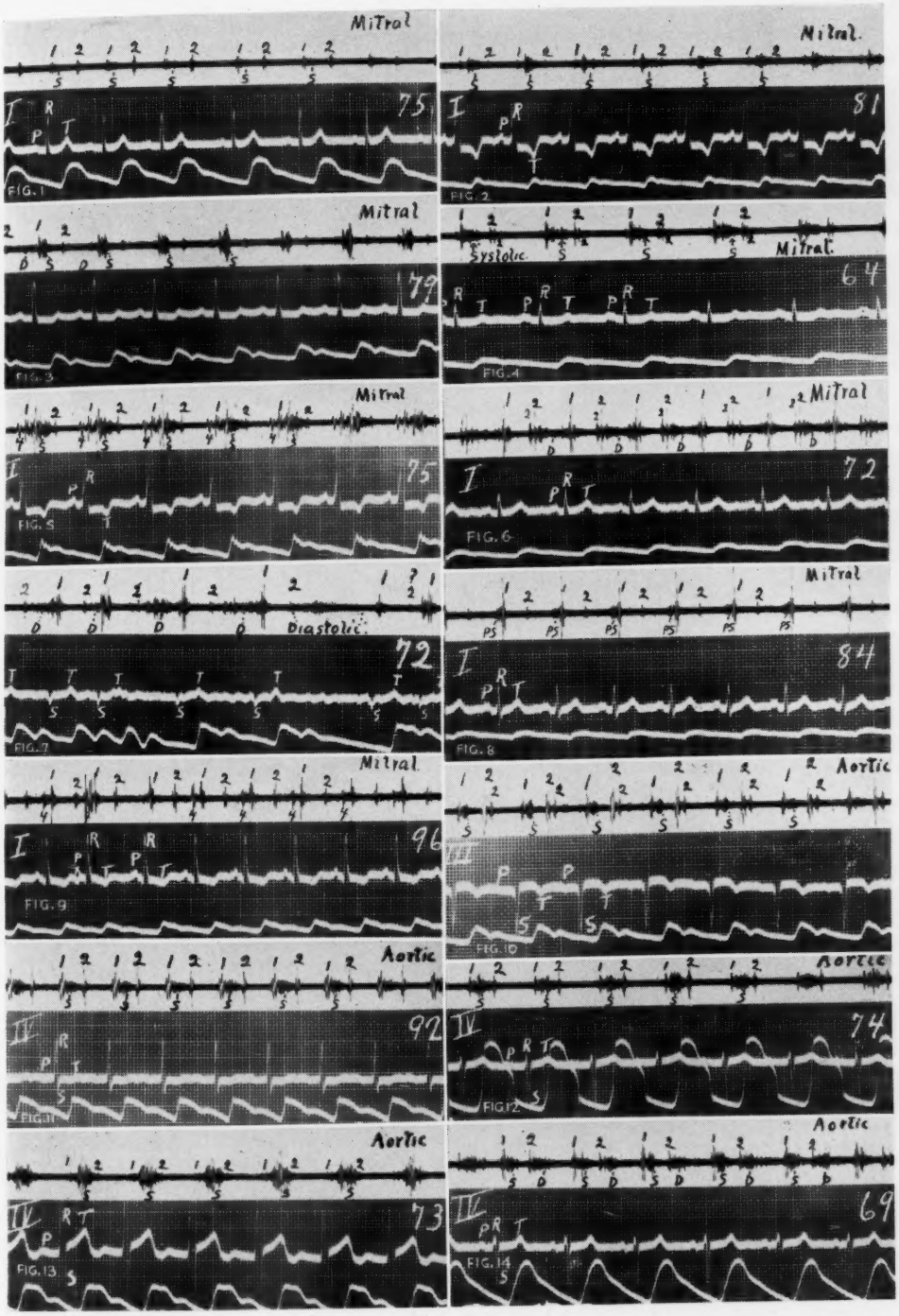
Mitral
75
FIG. 1
Mitral.
81
FIG. 2
Mitral
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FIG. 3
Systolic.
Mitral.
64
FIG. 4
Mitral
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FIG. 5
Mitral
72
FIG. 6
Diastolic.
72
FIG. 7
Mitral
84
FIG. 8
Mitral.
96
FIG. 9
Aortic
FIG. 10
Aortic
92
FIG. 11
Aortic
74
FIG. 12
Aortic
73
FIG. 13
Aortic
69
FIG. 14

symptom brought to our minds, but this is not true in children. In early life its affinity is for the heart, while in adults it usually attacks the joints. In children it often relapses, running a chronic course, and sooner or later the arterioles in the heart valves are affected.

Now is the time to attempt to cure this disease before destruction of the valves has taken place. The new "sulfon" group of drugs offers the best hope at the present time. It has been my good fortune in eight cases of rheumatic fever, three of streptococcus septicemia and four of staphylococcus septicemia (one of these with a severe knee joint infection and one with periostitis of the lower right femur and the left pubic bone) in which sulfanilamide, sulfapyradine or sulfathiazol was given to get a complete recovery with no permanent change in the endocardium or the myocardium. Perhaps these drugs are the answer to prevention of valvular deformities in at least some of these cases.

In adulthood valvular defects are usually the result of childhood rheumatic fever with later scarring deformity of the valves. Later in life, arteriosclerosis and syphilis begin their work of valvular destruction. With early intensive treatment, syphilis of the heart and aorta can usually be prevented but as to prevention of arteriosclerotic valvular heart disease, treatment is of little value.

CONFUSION OF NORMAL AND ABNORMAL HEART SOUNDS

Our problem is to know whether the unusual heart sounds we hear are due to: (1) organic change in the valves and what type of change it is—rheumatic, arteriosclerotic, hypertensive or syphilitic; (2) functional murmurs which are caused by many conditions outside the heart, as anemia; (3) sounds which are purely physiologic; (4) congenital lesions or (5) sounds outside the heart.

Group 1.—The murmur per se, of course, never needs any treatment, though dilating or cutting of the mitral ring in stenosis has been done and may in time become a practical method. The principal value of careful analysis in these cases is to discover the etiological factor and, if of value, to institute treatment at once. A diagnosis of heart disease must never be made on the murmur alone, yet this is usually the basis for such a conclusion. A presystolic murmur always points toward a progressive disease while a diastolic murmur often is caused by an organic lesion.

Group 2.—In this group the discovery of a murmur may be of great value in that it leads oftentimes to the cause, which when treated results in a normal heart and a normal body, as in anemia of the myocardium due to pernicious anemia. Other murmurs, while of no importance, may remain during the life of the patient and thus can be disregarded. The great majority of systolic murmurs do not result from organic changes and any systolic murmur which only appears after exercise is of no special importance. Those due to dilatation of the heart will disappear following proper treatment for heart failure.

Group 3.—Third and fourth sounds, reduplicated first and second sounds, broad sounds, systolic clicks and gallop rhythm may similate the murmurs in Groups 1 and 2. Thus careful clinical examination reinforced by accurate sensitive instrumental methods must be employed, and the proper conclusions will result.

Group 4.—The murmurs due to congenital lesions are always accompanied by some change in the heart. The proper recognition of a patent ductus botalli (a double murmur above the pulmonic area) is important since its surgical cure has become a success.

Group 5.—Some of these are of pathologic import, as pericardial rub, while others are of no significance and can be differentiated from intracardiac sounds by proper timing.

POSITION OF MURMURS IN CARDIAC CYCLE

Intracardiac murmurs may occupy any part of systole, of diastole or may continue throughout the cardiac cycle. Not to be too technical, in diastole a murmur may be protodiastolic (early), mid diastolic, presystolic (just before systole) or holodiastolic (entire diastole), while in systole it may take one or more of these positions.

Add to this the type of murmur, its intensity, where located and where transmited and its description is fairly complete. With some murmurs the direction of the blood current is not changed, while in regurgitations, some of the stream is reversed though in different parts of the cardiac cycle.. In some congenital lesions, arterial and venous blood are mixed and the murmur may even be continuous. The extracardiac murmurs usually do not fit in any one part of the cardiac cycle. In the illustrations murmurs are shown from low to high intensity, of varying durations and in various positions in the cardiac cycle.

COMPENSATION AND DECOMPENSATION

The heart is compensated for all practical purposes if the person is able to carry on his usual activities without any special distress.

Breathlessness on ordinary effort is an early sign of heart muscle weakness, but no valve change need be considered as the cause. Next increased heart rate appears and then signs of circulatory failure—dyspnea, venous distention and general congestion—tell the story of the degree of heart failure. How-

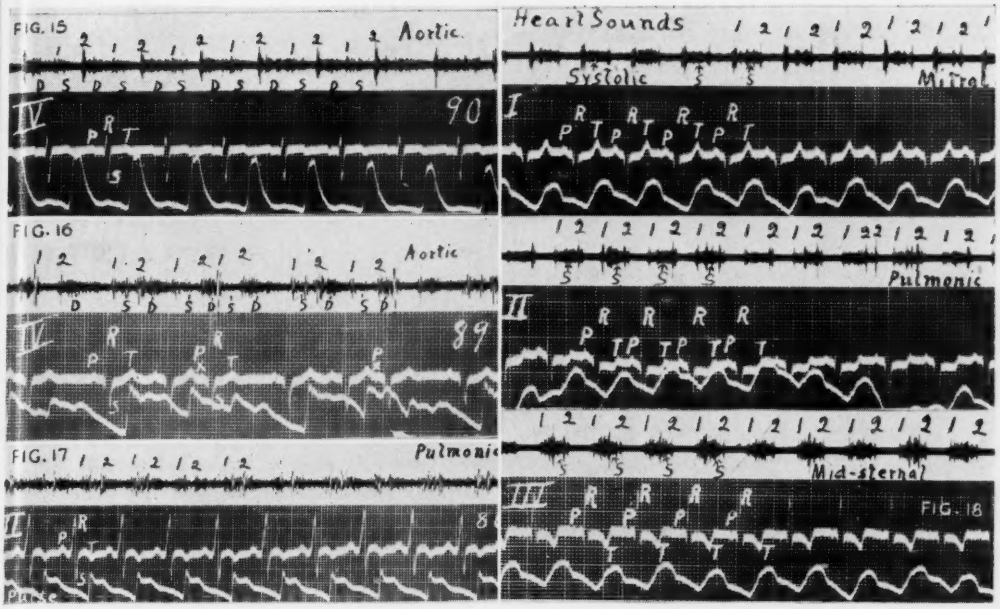

Fig. 15. Over aortic area. Aortic stenosis and regurgitation. Systolic murmur (S), soft and occupies the first half of systole. Diastolic (D) murmur, loud and of about the same intensity throughout diastole. Fig. 16. Over aortic area. Aortic stenosis and regurgitation. Systolic (S) murmur varies considerably but continues throughout systole. Diastolic (D) murmur is loud and continues throughout diastole. It is louder when diastole is short. Auricular extrasystole (p/x) decreases the preceding diastole. Fig. 17. Above pulmonic area. Patent ductus botalli. Murmur is continuous throughout systole and diastole. Fig. 18. Patent interventricular septum. A loud systolic (S) murmur is seen over the mitral, pulmonic and mid sternal areas. It is most intense in the latter position.

ever, at times in borderline cases the diagnosis can only be made by knowing the speed of the blood stream, the venous pressure, or by therapeutic tests as the administration of ouabain or digitalis.

TREATMENT

Chronic organic heart changes which cause murmurs need no treatment as long as the heart muscle is compensating normally. However, some clinicians give a maintenance dose of digitalis in these cases and believe this prevents cardiac hypertrophy. With this I cannot agree, for it has been shown digitalis has practically no effect on the normal heart muscle.

Many of these patients go through life without any treatment and their life expectancy is not decreased.

They should be allowed outdoor exercise within their work tolerance, such as, walking, swimming and cycling, for this generally builds up the strength of the heart muscle. If a healthy person with a normal heart is forbidden exercise he will develop heart symptoms when he is again allowed to exercise. So if this is true with a normal heart, how much more true it can be with a damaged heart.

They must be allowed to continue their regular work—especially professions, "white collar" jobs or any trades. In fact, the only injurious work is hard physical exertion, running and other severe strains which might overtax the heart muscle. They should never be told they are especially handicapped for bad suggestion causes more physical and mental anguish than the disease itself. Occupation of mind and body is absolutely essential to prevent physical deterioration in those who have led a busy, active life. Tobacco, Coca-Cola and coffee should be forbidden because they increase the heart rate, make the patient conscious of the heart beat (palpitation) by increasing the irritability of the myocardium and also increase the general nervousness. The weight should be kept within the normal range by a well planned diet of proper caloric value.

Sedatives and suggestion may be necessary, especially after being informed; "he has a leaky heart." At such times it requires much time and patience to overcome the psychic damage done by the thoughtless physician. Even though heart disease may be present, there is no need to graft a psychoneurosis upon it.[5]

Before decompensation suggestion is the most potent treatment, but the physician must be careful not to give the impression he is unsympathetic. Of course, this can only be done after a careful examination and the patient feels thoughtful consideration has been given to his problem.

After decompensation, ouabain followed by digitalis, salyrgan and restriction of fluid intake if edema, and activities within the patient's work tolerance are the most important part of the treatment. However, this is a long story and cannot be included in this paper.

Those conditions which result in heart murmurs —both so-called organic and functional—should be treated early and intensely with the hope of preventing any heart change. Some of these are: rheumatic fever, infectious diseases, acute infections, syphilis, the causes of arterial hypertension, anemias and their causes, hyperthyroidism and many others could be mentioned.

Of the congenital lesions which are accompanied by murmurs the patent ductus arteriosis is the only one directly amendable to treatment and this is by surgical intervention. The treatment of many of this group consists in properly directing the child's activities, though some never cause any inconvenience.

CONCLUSIONS

Murmurs may occupy any part of or be continuous throughout the cardiac cycle.

Murmurs of organic or inorganic heart origin, of intracardiac or extracardiac origin, and murmurs of all types and the various other heart sounds are often confused. This oftentimes results in unnecessary treatment or lack of necessary treatment, much to the detriment of the patient in either case.

This confusion can be prevented in most of these cases by the employment of accurate cardiac instruments.

Murmurs in themselves are not disease and need no treatment, but when accurately diagnosed point to the underlying cause which often can be eliminated.

The earlier the recognition of the murmur and its cause, the earlier proper treatment may be instituted.

The advancement of methods of auscultation and the accurate registration of heart sound findings have increased our knowledge of the heart but all other methods of any value must be used, as well, to arrive at a complete, accurate understanding of the condition of the heart.

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ACTIVE TREATMENT OF TUBERCULOUS PULMONARY CAVITIES BY SURGERY*

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The remarkable advances in technique achieved by thoracic surgeons in the past decade, accompanied by an amazing lower operative mortality and higher percentages of good end results, has caused the cavernous type of tuberculosis to be considered a surgical disease. The sudden display of activity in the treatment of a disease which heretofore had been considered as one demanding only prolonged and passive management and in many instances one entirely hopeless, has in turn stimulated the interest of practitioners in all the fields of medicine. General practitioners and men in other special fields of medicine and surgery, who previously had only a passing interest in tuberculosis and who, for some reason or other, would visit a modern tuberculosis hospital where surgery is performed, would always return tuberculosis-minded and enthused over the changes in treatment. It would be an instance of, "I came, I saw, and I was convinced."

A clear understanding of the disease with respect to treatment is best developed by studying the classification proposed by Ornstein, Ulmar and Dittler. In considering what treatment to apply to a case having this disease, the question to answer is "what kind" of tuberculosis does the patient have, not the question "how much" disease is present.

Not all forms of tuberculosis should be treated by surgical collapse.

Primary infection or the so often mis-called childhood tuberculosis requires no form of surgical intervention. In the majority of instances this type will respond to bed rest and a good medical regime.

The second or re-infection type of the disease is the one that furnishes the cases in which surgery is necessary. This group must be further divided into, first, the acute exudative form which is the early onset of the disease and which at this stage is often mistaken for pneumonia, flu or some acute respiratory infection. In this form we are dealing with an inflammatory edema and there is no evidence that collapse treatment will influence its resolution. Second, the caseous-pneumonic form, in which the dose of the invading organisms has been overwhelmingly massive and causes cell destruction. Here the

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lesion first caseates, then it liquifies, and then breaks down into cavity formation. This is the form of the disease that we most commonly see, and the one that should definitely have some form of collapse started at once. These are the far advanced and highly contageous cases, many of whom in the past were considered hopeless from the standpoint of treatment. Experience has proven that in not more than ten to fifteen per cent of these cases will the cavity close spontaneously with bed rest and medical care alone. The third form of the re-infection type tuberculosis is the chronic productive form. This is characterized by acinous nodose lesions or fibrous tubercles that gradually, over a period of months and years, seem to seed downwards from the apex of the lung to the base and produce very little in the way of symptoms. There is no point in attempting to collapse these lesions. Therefore, the presence of cavity is the prime indication for the use of collapse therapy. It is for these cases that the following methods of collapse were designed.

To completely cover in detail all of the collapse procedures with their histories and modified techniques would require a monograph on the subject. An attempt here will be made to condense as much as possible, and list each of the important forms of collapse in its proper place, with the hope of furnishing a clearer and more general knowledge of the place surgery plays in the treatment of tuberculosis. A brief explanation of the mechanics, the indications and the dangers of each one will be given.

There are five different surgical procedures in use today with collapse of the lung as their object and one accepted technique involving drainage of the cavity. Various operative techniques are continuously being devised and are used by different operators, but no attempt here will be made to bring out these variations. As when a new drug is introduced on the market, so it is with a new operative procedure. Many individuals are prone to consider it a panacea and are wont to use it in place of older ones. It is the object of this discussion to point out that each of these six procedures has its own place in the treatment of tuberculosis and that no one of them should be used to the exclusion of any of the others. It is desired to show the role each one plays in the proper management of a case having tuberculous cavities.

In the eyes of the thoracic surgeon the problem is a technical and a mechanical one. The tuberculous cavity is really nothing more than the mechanical end-result of an acute disease. There is a hole in the lung which, as long as it exists, is an excellent incubator of the tubercle bacillus. It produces material that sooner or later will be coughed into a healthy part of the lung, creating an acute bronchogenic spread or be disseminated through the blood stream and in either case will eventually result in the death of the patient. The cavity or hole in the lung is surrounded in all directions by elastic lung tissue. A point to be well remembered in order to visualize the mechanics. The normal tendency of elastic lung tissue is to contract and to shrink in all directions around the root area. This situation can be readily seen in a normal lung when the chest is opened at autopsy. The lung is then found in a collapsed state. The thoracic cavity is much larger in cubic measurement than the normally contracted lung and its shape and size is more or less maintained constant by means of the bony cage. Thus during life, the elastic lung is pulled out in all directions, stretched and expanded to fill the entire chest by means of a negative pressure or vacuum in the pleural cavity. When air is introduced into the pleural cavity by the method of inducing a pneumothorax, the vacuum is disturbed and the lung is allowed to retract away from the chest wall and assume its natural position contracting around the root area. The air in a pneumothorax does not push the lung away from the chest wall. When the lung is free to retract in all the circumscribed directions, the cavity gradually decreases in size until its lumen is obliterated.

This roughly describes the mechanics that exist and furnishes the rational for collapse therapy.

The first of the forms of collapse used is:

INTRAPLEURAL PNEUMOTHORAX

Although this procedure was devised and is being used by medical practitioners, it is still in a sense, a surgical technique.

The mechanism of this form of collapse has already been described in a preceding paragraph. After sufficient air has been introduced into the pleural space to obtain the desired collapse of the lung, it is then necessary to replace it at varying intervals in order to maintain that collapse. The rate of absorption of air from the pleural space varies with the case and requires individual attention and observation of the pressure readings. Also, the patient should always be fluroscoped at the time of each refill in order that the state of collapse may be visualized. It might be mentioned here that in the literature one will find considerable emphasis upon the part that "rest of the lung" plays in healing tuberculosis. There is no question that rest is the important factor that ultimately causes healing, and that lack of rest will retard or prevent arrest of the disease. But in dealing with cavities the principal factor at first is a mechanical one. After the walls of the cavity are mechanically approximated, then

rest is definitely essential for permanent healing. It is hard to believe that pneumothorax collapse is effective because it provides rest for the lung. It does cut down the circulation and movements of respiration are inhibited to a certain degree, but anyone who has observed a collapsed lung under the fluoroscope can see it function and has noted that it expands and contracts with each respiration. Therefore, the factor of mechanics seems the more plausible and of the first importance.

The indication for this form of therapy is simply the presence of tuberculous cavitation.

Pneumothorax should be attempted as soon as the diagnosis of cavity is made. Time is a most important factor. Delay in attempting this form of collapse may condemn the patient to running the gauntlet of all the surgical procedures to be described hereafter. Early institution of pneumothorax will often avoid the necessity of more radical and serious procedures.

In a diseased lung there is a certain factor that may prevent the establishment of a good pneumothorax collapse. That is, the extension of the inflammation to the surface of the lung causing the parietal and visceral pleurae to become adherent. Delay in the institution of pneumothorax may allow this situation to occur so that when an attempt finally is made, either a poor collapse or none at all will result. In about half the cases in which pneumothorax is attempted it will be observed that some form of adhesions prevent the lung from pulling away from the chest wall. A surgical procedure has been designed to handle this type of case.

INTRAPLEURAL PNEUMONOLYSIS

The sole object of this operation is to create an effective and good pneumothorax collapse out of a poor one. This is done by severing the adhesions holding the lung to the chest wall. Local infiltration with novocaine is used and a special cannula is introduced between the ribs thru which a visual instrument similar to a cystoscope is inserted. The pleural cavity can then be thoroughly inspected and the adhesions studied. A cautery is then inserted through a second cannula in another interspace and the adhesions severed by direct vision.

The indication for this operation, therefore, is a case with cavity in which a pneumothorax has been induced and an incomplete collapse has resulted due to pleural adhesions. With the x-ray the adhesions can be seen holding the cavity open.

These adhesions vary in number, size, and shape. There may be any number of them from one to twenty or more. Some appear long and thin like fiddle strings. Others are short, thick, and cylindrical in shape. Others appear as accordian pleated sheets that run in all directions in the chest. Some of these sheet adhesions are as thin as tissue paper while others may measure up to one centimeter in thickness. The thicker ones most usually have lung tissue extending out into them for varying distances to the chest wall. This latter condition presents a very real danger; for if the cautery cuts through pulmonary tissue a broncho-pleural fistula results that may cause an empyema. Consequently the safest practice is to sever all adhesions close to the parietal attachment and even in the case of very thick ones, it is sometimes necessary to cut through the parietal pleura and dissect in the endothoracic space. Some of the thick adhesions also contain fairly large blood vessels, which, if they are not thoroughly coagulated before cutting, may cause severe bleeding. Often bands will be found attached to the aorta or the subclavian artery or to any other structures in the mediastinum in which case great skill is required in freeing them.

Thus it can be said that this operation, if performed by a skilled operator who has had considerable experience with this procedure and who has perfected his judgment as to when and where to cut and when not to cut, is a very minimal one as regards the discomfort to the patient. However, in the hands of one not so experienced, this operation can present far greater dangers than any other major surgical procedure in the chest.

The question occasionally is asked how soon after initiating a pneumothorax should one advise a pneumonolysis operation. The answer to that is, simply as soon as possible. When a pneumothorax collapse is started and adhesions can be seen to interfere with the collapse, and the space is large enough for the manipulation of the instruments, there is no reason for delay. The more rapidly that this is attended to, the quicker the cavity will close and the patient will be started on the road to recovery. There is considerable danger in delaying a pneumonolysis, and particularly in attempting to stretch adhesion bands by increasing pneumothorax refills. The bands under tension may break and in so doing tear lung tissue and result in a bronchopleural fistula and empyema. Also, the longer one waits the thicker the pleura becomes and the more difficult it is to sever the bands.

Many times when the pleural cavity is inspected through the thoracoscope, adhesions will be encountered that are so thick that they cannot be severed without the danger of cutting lung tissue, or the lung may be seen to be completely adherent over a wide area. When this situation exists, improvement of the pneumothorax collapse by pneumonolysis is impossible. In this case there is no

point in continuing the ineffective pneumothorax any longer. It should be stopped and the lung allowed to re-expand and some other form of collapse be considered immediately.

The problem now becomes more complicated in regards to selection of the proper procedure. Any one of the following three surgical techniques may be selected dependent upon certain factors which will be discussed with each in turn.

EXTRAPLEURAL PNEUMOTHORAX

The aim of this operation is to produce a selective collapse of the part of the lung involved by creating a pocket between the parietal pleura and the chest wall and maintaining this pocket with refills of air as with an intrapleural pneumothorax, or by filling the space with an oil preparation. The technique is usually performed by the subperiosteal removal of a full length of one rib. Then, by careful dissection through the rib bed or through the intercostal muscles, the endothoracic fascia plane is encountered just before reaching the parietal pleura. With blunt dissection along this plane, a line of cleavage is started. The entire lung with visceral and parietal pleurae together is carefully forced away from the inner surfaces of the ribs and intercostal muscles until a large space is obtained. The dissection is usually carried out over the apex of the lung and down the mediastinum to the lung root. The wound is then hermetically closed. This extrapleural space is then maintained by air refills similar to an intrapleural pneumothorax. If there is difficulty in maintaining the space because of tendency of the lung to re-expand, it may be converted into an oleothorax. The operation can be done under local or general anesthesia and is usually attended with little or no shock.

Due to the fact that the widespread use of this technique in this country is still rather recent, there has been considerable controversy over the indications for it. This author believes, however, that it should not be done until the usual intrapleural pneumothorax has been tried first. It must also be remembered that, like intrapleural pneumothorax, it is a reversable procedure. In other words, the lung is eventually expected to re-expand. Therefore, it cannot be compared to thoracoplasty which is an irreversable procedure that furnishes a permanent collapse of the lung. In spite of the fact that this operation is attended with little shock to the patient it is in no sense a harmless procedure. It carries with it more chances for serious complications than thoracoplasty does. The tearing down of infected lymphatic channels by blunt dissection extrapleurally sometimes causes a tuberculous empyema of the space. The space can be infected with other pyogenic organisms also. Instances have occurred where the dissecting finger or instrument has ruptured through the lung into a large cavity with serious consequences. Other instances of spontaneous rupture of the cavity into the space have been reported. Persistent broncho-extrapleural-cutaneous fistulae have occurred. Persistent cutaneous oil fistulae have been seen. These few of the more serious and annoying events are cited, not to run down the technique, but to inspire caution and respect for the indications. This author has used it in a number of cases with gratifying results and feels that it definitely is of value and has a place among the methods of collapse treatment.

Because it is attended with less operative risk, it may be used on patients who might be considered not able to endure thoracoplasty—for example older individuals who might have heart or kidney trouble or other complications.

Some cases, in which the cavitation is in the midlung or near the base anteriorly, may have a better chance of a good collapse with extrapleural pneumothorax than with thoracoplasty.

Sometimes it may be combined with and made to join an old longstanding intrapleural collapse in which a portion of the lung is completely adherent. Although it is believed that in most of these cases thoracoplasty will eventually be necessary.

Its greatest usefulness, however, is in bilateral cases that are in poor general condition. After an extrapleural pneumothorax on one side the patient may improve enough to do a thoracoplasty on the other. Or he may tolerate a bilateral extrapleural better than a bilateral thoracoplasty. A patient may have an intrapleural pneumothorax or a thoracoplasty on one side, and, because of a low vital capacity, it is necessary that he have an ultra-selective collapse on the other.

Some cases with bronchial tuberculosis and asthma associated with their cavitation will tolerate this operation better.

So it can be seen that there are definitely some instances where it seems wise to choose this method of collapse. Undoubtedly as time goes on the indications will be more clear.

THORACOPLASTY

This is the one major procedure that furnishes a complete and permanent collapse of the lung. An irreversable procedure in tuberculosis is often desirable from many points of view. For one reason, there is not the question of how long should the collapse be maintained and the fear that when the lung re-expands the cavity will re-open. In other instances to be described later it is essential.

Recent changes in technique have made this a much less deforming operation than it used to be.

When one makes such radical changes in the bony skeleton anywhere, they must naturally expect some difference in that person's figure. Yet there are many who consider that a contraindication. It is hard, though, to understand this objection and to reconcile it with the fact that amputation of an arm or leg is more noticeable, and demurred to less often. Thoracoplasty is a life saving operation and it is a question of either performing it or doing nothing for the patient.

The technique described in 1935 by Carl Semb of Oslo has improved this operation very considerably. A brief description of one technique follows: a long, curved paravertebral incision is made, the back muscles cut across and the scapula retracted. The serratus muscles are then sectioned above their costal insertions and the perforating branches of the first and second costal nerves cut. An excellent exposure is then obtained. The third, second, and first ribs are then resected subperiosteally in their full lengths. The intercostal bundles consisting of muscles, nerve, and vessels are then completely removed. The posterior rib stumps and a portion of the transverse processes are then removed. A line of cleavage is then found in the endothoracic space and the entire apex of the lung peeled downwards from the great vessels, the mediastinum, the dorsal vertebrae, and the sternum. This technique of decollation or apicolysis is most important and furnishes a maximum circumscribed collapse of the upper part of the lung. The periosteum of the ribs is left intact in order to later form a bony roof over the collapsed lung, thereby preventing any re-expansion. The wound is then closed in layers without drainage. After about three or four weeks the same wound is re-opened and the fourth, fifth, and sixth, and sometimes the seventh ribs are removed subperiosteally with their intercostal bundles and closed as before. The resection of this number of ribs is sufficient in most cases. The number of ribs or stages of operation necessary is dictated by the bottom level in the lung at which the pathology exists.

The indication for this operation are those cases in which intrapleural pneumothorax was impossible or failed to collapse the diseased area.

Some cases are found who have had a pneumothorax over a period of years and when attempts are made to abandon it the lung refuses to re-expand. Thoracoplasty then is necessary.

As time goes on and more lungs collapsed by pneumothorax are allowed to re-expand, cases are being discovered in which severe symptoms develop due to the permanent shift or deviation of the mediastinum and torsion of the heart and great vessels. Four cardinal symptoms are sometimes observed: severe shortness of breath on exertion, irregular pulse, cyanosis and anginoid pains. These may become so severe that an irreversable collapse, as obtained with thoracoplasty, is indicated.

For the sake of brevity and because this discussion is principally concerned with the treatment of cavities, there will be no description of thoracoplasty in connection with empyemata.

Occasionally there is encountered a pathological situation which causes a certain type of tuberculous cavity to occur. This has been variously described by Coryllos,[2,3,12] Ornstein,[1] Eloesser[13] and others as a check-valve, ball-valve or tension cavity. This type is extremely resistent to any of the aforementioned methods of collapse. Such a situation exists when there is tuberculous infection of a bronchus that leads to a cavity. A proliferative lesion in that bronchus or contraction of scar from a healed ulcerative lesion may partially obstruct that airway and set up a mechanical ball-valve action. With inspiration, the air can freely enter the cavity but at times is prevented from flowing out. This builds up a positive pressure in that cavity, blowing it up like a ballon. If observed over a period of time, the changes or fluctuations in size of that cavity may be noted by x-ray. Sometimes these cavities may suddenly close spontaneously if the bronchus becomes completely occluded and the air within is absorbed. However, most usually these cases resist the ordinary forms of treatment. An operation has recently been devised by Monaldi designed to deflate and furnish drainage of this type of cavity.

TRANSTHORACIC DRAINAGE OF TUBERCULOUS CAVITIES

Patients who have a check-valve cavity frequently complain of severe spasmotic coughing spells particularly at night. Their cough might come on suddenly and be hard, and non-productive and racking, then all at once it will become productive and they will be able to expectorate a good quantity of sputum. This is probably due to a sudden release of the intracavitary pressure and exudate with the opening of the obstructed bronchus.

The operation is performed under local anesthesia. After the cavity is carefully localized, a needle is inserted and intracavitary pressure readings taken. Through a small skin incision made over the area, a specially constructed trocar and cannula is then inserted between the ribs through the pleurae and lung tissue into the cavity. The trocar is withdrawn and a special rubber catheter is threaded through the cannula. The cannula is withdrawn, leaving the end of the catheter in the cavity. The catheter is then connected to a suction apparatus and continuous, low suction maintained. A gradual decrease in the

size of the cavity is noted over a period of several weeks and many cases of complete closure have been reported. The length of time the technique has been used is too short for a complete evaluation of end results. Several theories concerning the rational of this procedure have been proposed that may be studied in other articles on the subject. In the main, the attempt is made to prevent the accumulation of positive pressure and secretions in the cavity and to convert it into a small tuberculous fistula. In time, if the check-valve mechanism is destroyed, a subsequent thoracoplasty may be performed with reasonable assurance of success. Recently some surgeons prefer thoracoplasty first, followed by this procedure afterwards.

The one absolute requirement before this operation can be performed is the fact that the pleural space overlying the cavity must be completely obliterated. If this is not so, a complicating empyema will result. Therefore, if a pneumothorax has been done previously, it must be abandoned and the lung completely re-expanded and stuck before needling the cavity.

At present deflation of the cavity by some method is the only thing that offers some promise of handling this very difficult type of case.

PHRENIC NERVE OPERATIONS

Only brief mention will be made concerning this procedure. Since its wide use a few years ago, it has fallen somewhat in esteem. Like many new and simple remedies it has been over-used, and now the pendulum is swinging in the opposite direction. It has some value, however, in the hanging type of cavity described by Slavin[14] in conjunction with a pneumothorax. It is also conceiveable that some cavities in the mid-lung or lower lobes will close with its use. However, when it is used for apical cavities with reported good results, it must be remembered that from ten to fifteen per cent of cavities close spontaneously. Its use in bilateral cases should be condemned because of the attendant lowering of the vital capacity and minimum chance of closure of the cavity. There are other procedures that give a better selective collapse with a maintainance of good lung volume.

SUMMARY

More detailed information on any of these collapse procedures may be had by a study of the references. This was presented more or less as a summary of the more important methods of collapse in the treatment of tuberculous cavities. The attempt was made to link the indications for each and show their relationship to the logical and intelligent management of such a case. It is hoped that by showing the present day activity in the treatment of this ancient malady, interest will be aroused in all medical practitioners so that they will unite and help eradicate this disease.

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"Word has not reached our office of all the broadcasts, but we have the text of the talk given by Dr. J. L. Lattimore, Topeka pathologist, and think a sentence or two will be worth your reading:

"In addition to all of the various commercial products that you see in a drug store, the pharmacist must carry a large and variable stock of drugs for the filling of prescriptions as prescribed by your physician. This stock must be kept under good conditions, so that no inactive drugs will be furnished the customer; thus the pharmacist often plays a very important part in your recovery from an illness.

As a general rule, pharmacists discourage so-called counter prescribing, the practice of a customer asking the pharmacist to supply drugs for a certain illness. The fallacy of this practice is more the blame of the customer, as he assumes the role of making a correct diagnosis.

If, during the present emergency, your druggist states that it is impossible to secure certain drugs, rest assured that either supply has been cut off or used up, so take the fact with a smile as you will be called upon to do many times during the next few months or years.

Modern pharmacy is marching forward, keeping abreast of the times; hand in hand with the medical profession they pledge to the millions of their patrons to work to the end that you will have a healthful and happier life. Remember that when you take your prescription to a pharmacist and he retires to his prescription counter to compound it, that he is rendering to you a service that no other individual, be he the greatest statesman, can fulfill. So I say to you, not for advertising purposes, 'Your druggist is more than a merchant!' "—From the Kansas Pharmaceutical News.

UNDULANT FEVER

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The first cases of undulant fever in Kansas were reported in 1927 by Major C. C. Hillman of the United States Army Medical Corps at Fort Riley. Since that time a total of more than eleven hundred cases and forty-five deaths attributed to the disease have ben reported in this state. This is an average of eighty cases and three deaths a year. But the reported incidence of the disease has steadily increased so that one hundred sixty-five cases were reported in 1940. Undulant fever is an important disease in Kansas, largely because we are a dairy state, and therefore all physicians should be constantly on guard against it.

HISTORY

Apparently the disease has existed for many centuries, but it was not until 1861 that it was identified as a separate disease by Marston who called it "Mediterranean, or gastric intermittent fever." The causative organism was isolated in 1887 by Bruce from the spleen of Marston's patients who had died with the disease. In 1897 Wright and Semple demonstrated that the organism isolated by Bruce was agglutinated by the blood serum of those affected with the disease. Hughes in 1897 gave the descriptive name of "undulant fever" to the human disease.

Undulant fever was a prevalent disease among military and naval men stationed on the Island of Malta, and for this reason was often called "Malta Fever." Zammit proved conclusively in 1906 that it was being spread there by milk from infected goats. Mr. Thompson of the United States Bureau of Animal Industry was sent to Malta in 1905 to buy milk goats. He brought back sixty-one female and four male goats. Eight men who drank goat's milk on the voyage back developed undulant fever, and one woman at Athenia, New Jersey, who drank milk from these goats while they were in quarantine also developed the disease. All of these goats were subsequently killed. In 1911 Ferenbaugh and Gentry showed that the disease was endemic in southwestern Texas and came from infected goat's milk. It was shown that the condition had existed in Texas for a long time.

Meanwhile studies had been carried on in other animals. Professor Bang of Denmark, assisted by Stribolt, isolated in 1897 an organism from the fetuses and fetal membranes of cows that had aborted, and showed that this germ was the cause of infectious abortion of cattle. This condition is now called "Bang's abortion disease," or simply "Bang's disease," or "contagious abortion in cattle." In 1911 Smith and Fabyan, and Schroader and Cotton, working independently, demonstrated that this organism in cows collected in the udders and is discharged in the milk of infected cows. Traum in 1914 isolated an organism from fetuses born prematurely from cows.

But it was not until 1918 that A. C. Evans showed that the organisms isolated from the three sources, goats, cows, and hogs, were identical organisms to be differentiated only with great difficulty. Meyer and Shaw in 1920 gave the name Brucella to this genus of bacteria, in honor of the discoverer. This genus contains three species: Brucella melitensis from goats, Brucella abortus from cows, and Brucella suis from hogs. Infection with this genus in any animal, including humans, is now commonly called "Brucellosis."

The first proven case of brucellosis originating in the United States was reported in a nurse in 1904 at a Washington, D. C., hospital. But she had never used goat's milk. Keefer in the United States reported a case of human brucellosis in 1924 at first thought due to Brucella abortus, but later found to be due to Brucella suis. The first cases of brucellosis in humans due to Brucella abortus were reported in 1925 by J. T. Duncan of Rhodesia.

It has now been abundantly proven that all three species of Brucella cause undulant fever in humans, and that these species are not host specific. For example, Brucella suis may be excreted occasionally in the milk of cows as well as hogs. Cows are probably infected from hogs by association on the same farm. All three species of Brucella have been isolated at various times from the blood of patients suffering from undulant fever, and injection of any of these species causes the same symptoms of undulant fever in humans. In general, the Brucella melitensis and suis cause more severe symptoms than Brucella abortus, but more depends apparently on the constitutional reaction of the individual than on the species. Many cases of Brucella abortus infection are acutely ill and some of them die.

PREVALENCE

Undulant fever is now known to be a widely disseminated disease all over the world, the greatest incidence being in those areas where the most goats, hogs, and cows are raised, and where the most raw milk and other raw dairy products are used. Between 2,500 and 3,000 human cases are reported annually in the United States, but many times this number actually occur because the disease is neither

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well recognized or reported. Skin testing and blood testing surveys on humans indicate that about seven to ten per cent of the population is infected, frequently subclinically.

MODE OF DISSEMINATION

All ages and both sexes are susceptible, but young adult males between twenty and forty-five years of age are most frequently affected because of occupational hazards in connection with raising, killing, or handling livestock for food. Although children are frequently infected they do not often develop marked clinical symptoms because of an apparent relative immunity. Undulant fever may be acquired directly by dairymen, cattle raisers, veterinarians, and meat packing employees while handling livestock. Laboratory workers may be infected directly by handling Brucella organisms in the laboratory. No human cases have ever been traced to eating meat.

The most usual way of acquiring undulant fever is by consuming raw milk or other raw dairy products from infected animals. This is particularly true in cities where the only contact with animals is indirect, through raw milk. More cases of human brucellosis in the United States are traced to raw milk than to any other source. The disease is not transmitted from humans to humans.

SYMPTOMS

The incubation period varies considerably, reports ranging from one week to six months. In the case of undulant fever acquired by drinking raw cow's milk the incubation period generally lies between one and three months.

The symptoms of human brucellosis vary from subclinical ambulatory cases to malignant bedridden cases. Huddelson and Hardy in "Brucellosis in Man and Animals," published by the Commonwealth Fund, describe the intermittent type, ambulatory type, undulant type, malignant type, and the atypical chronic type. Such classification of symptoms is not so important; rather one should have a general symptom-complex in mind. The typical symptoms are weakness, fever with morning remissions, headache, muscular or arthritic pains, profuse sweats, chilly sensations and actual chills, nervousness, constipation, secondary anemia, relative lymphocytosis, enlarged spleen, positive brucellin skin test, and positive blood agglutination test. Cases vary as to the relative prominence of these various symptoms.

In the intermittent type the onset is insidious with a sense of progressing afternoon weariness. Then follow general aches, slight headache, poor appetite, chilly sensations early in the evening, moderate insomnia, and slight fever. Many develop backache, stiffness or pain in the neck and joints, constipation, loss of weight. Some develop a hacking cough. Night sweats are frequent, often profuse. Severe chills may occur, but it may be several weeks before the patient walks into the doctor's office, and even then he may be unable to adequately describe his symptoms. There may be no physical signs on examination. The spleen may or may not be enlarged and the abdomen tender. The patient may be up in the morning and in bed in the afternoon. Weakness, headache, and loss of appetite may be the only symptoms. The illness lasts six weeks to four months with one-third of the time spent in bed. Temperatures range from normal in the morning to 104 degrees in the evening. On returning to work the patient may have a relapse.

In the ambulatory type the illness may be short and mild so that patients scarcely realize that they are ill. This might be called a subclinical infection. The onset is insidious with often only one constant symptom, weakness or reduced endurance. Many of the symptoms of the intermittent type are present at times. The temperature ranges between normal in the morning and 101 degrees in the evening. The illness may last only a few weeks or months.

It is characteristic of the undulant type that there are relapses with periods free of fever. The onset is like the "flu" with weakness, general aches, headache, loss of appetite, and dizziness. After a period of illness the symptoms subside, only to return in stronger form. Night sweats appear. The temperature rises day by day like a step ladder. Morning remissions are marked. The disease may last for about four months with acute symptoms, and then become chronic.

The malignant type is usually caused by Brucella melitensis. There is a sudden onset, an acute course, and a fatal ending after two weeks. There is a continously high fever until death, great prostration, chills, profuse perspiration, delirium, coma, and enlarged spleen.

The atypical chronic type may have vague indeterminate symptoms resembling ambulatory typhiod fever, bronchopneumonia, tuberculosis, rheuphoid fever, bronchopneumonia, tuberculosis, rheumatism, meningitis, cystitis, hyperthyroidism and even acute surgical conditions. In such cases laboratory methods are essential aids in arriving at a diagnosis. Chronic brucellosis cases may have few symptoms, only headache and the ever present unexplained weakness. There may be vague pains in various parts of the body, even suggesting chronic appendicitis. Arthritic or muscular pains are common. There may be slight elevations of temperature toward evening. Many develop mental and neurological symptoms of depression, apprehensiveness, irrita-

bility, sleeplessness, shedding of tears without cause, tremors, and even "mental or nervous breakdowns." There may be temporary disturbances in speech, loss of memory, loss of various sensations, and sensitivity to light. Such symptoms may come and go for twenty years or longer. No diagnosis of "neurasthenia" should ever be made without first ruling out brucellosis.

DIAGNOSIS

The diagnosis may be made when the patient presents the characteristic symptom—complex, or when atypical symptoms are supported by laboratory evidence. The most important single laboratory test is the blood serum agglutination test. Five or ten cubic centimeters of blood are sent to the laboratory where the agglutination test is run in the same manner as for typhoid fever. The skin test for brucellosis is applied in the same way as the Mantoux tuberculin test, the material used being a killed culture of brucella organisms or a filtrate. But the skin test alone is not diagnostic since, like the tuberculin test, it may indicate infection of long ago, even after recovery. The opsonocytophagic test recommended by Huddelson is somewhat complicated and does not materially aid in diagnosis, we believe. The greatest reliance should be placed on the positive agglutination test, positive in any titre, in combination with suspicious symptoms. Blood from all acute cases should be examined bacteriologically for an attempted isolation of brucella organisms. Isolations are occasionally successful.

PROGNOSIS

The prognosis as to fatality is generally good, only three or four per cent of reported cases terminating fatally. The ultimate cure as to freedom from symptoms is problematical, no two cases reacting similarly. A large number of cases, almost all, have relapses or recurrences of symptoms to some degree, sooner or later.

TREATMENT

The treatment of brucellosis at present is of two forms: specific vaccine therapy or the administration of one of the new sulfonamide drugs. The degree of success claimed for these two methods of treatment varies considerably.

The vaccine treatment consists of injecting 0.25 cubic centimeter of a heat-killed suspension of mixed brucella organisms intramuscularly every two or three days, increasing the dose fifty per cent each time until one cubic centimeter is given at a dose, but not exceeding this dosage. The injections are continued until a severe systemic reaction has occurred, consisting of an accentuation of the patient's subjective and objective symptoms. The injections are then stopped to permit the fever to fall by lysis. If the expected response is not achieved after seven injections, the patient should be given a rest of several weeks before continuing treatment.

It is apparently only in the very early acute cases that the antiserum of Lee Foshay is of value. The therapeutic results in such cases is sometimes amazing.

The various sulfonamide drugs are given in their usual dosages when treating undulant fever.

UNDULANT FEVER IN KANSAS CITY

The first recorded mention of undulant fever occurring in Kansas City, Kansas, appeared in an article by Dr. Fred E. Angle in the Journal of the Kansas Medical Society of October, 1929. Ten cases were reported therein. In the Journal of the American Medical Association of September 21, 1935, the same physician reports the result of vaccine therapy on one hundred patients. Although some of these cases were non-residents, most were residents of the city. In the Annals of Internal Medicine of June, 1937, Drs. Angle and Algie describe how one Kansas City, Kansas, resident became insane from undulant fever and had to be admitted to the state mental hospital. Investigation revealed that these cases of undulant fever were due to using raw milk. In the Annals of Internal Medicine of October, 1938, Drs. Angle, Algie, Baumgartner and Lunsford give the results of a skin testing survey for undulant fever among school children. It was found that nine per cent of the children reacted positively to the test and that many of them had some manifest symptoms of the disease. Investigation revealed that the positive reactors were using raw milk or had used it in the past. We may conclude that undulant fever due to raw milk has been a problem in this area for a long time.

In 1940 a total of eighty-two cases of undulant fever were reported in the city, of which number fifty-two were residents. Of the thirty non-resident cases, thirteen were residents of Kansas City, Missouri. The majority of the cases were in the thirty to fifty age group, but four children were reported, one as young as three years of age. None of the patients had had direct contact with animals except a veterinarian, a dairyman's wife, and a meat packing worker, but these three also used infected raw milk. Most of the cases could be described as "white collar" workers having no contact with animals. Four cases were lawyers. One lawyer died of undulant fever in 1940. Without exception, all resident cases investigated had used raw milk.

The milk and cows of seventy-four raw milk dairies were tested, and of this number seventy-two dairies showed evidence of having Bang's disease in

their herds. Some dairies had as high as sixty per cent of their cows infected. Of all cows tested in this milk shed an average of twenty per cent were found infected. In addition, the Brucella abortus, the causative organism of undulant fever, was isolated directly from the milk of cows, from bottled raw milk, and from the blood of undulant fever patients. The evidence is overwhelmingly conclusive that the reported cases of undulant fever acquired their undulant fever through raw milk from these dairies having Bang's infected herds.

PREVENTION

The problem of prevention may be approached in two ways: either test the cattle by means of the blood serum agglutination test and remove the reacting animals, or pasteurize the milk. Testing cows gives only a poor protection since the disease may appear in the herd and be transmitted through the raw milk between tests. The three year old boy who developed acute undulant fever is a good example of this for he obtained raw milk from a herd which was tested twice a year to meet the requirements of Kansas City, Missouri. After the boy became ill this herd was tested again and two new infected cows were found. No vaccination of cows offers any protection against undulant fever, and moreover vaccination causes a positive blood serum reaction in the cow which cannot be distinguished from the reaction due to true infection. The United States Department of Agriculture and the Kansas State Livestock Sanitary Commissioner recommend vaccination of calves under eight months of age, but not older animals, to prevent abortion but not as a measure to safeguard the milk supply.

Pasteurization offers the most nearly perfect safeguard, not only against undulant fever, but also against all milk-borne diseases, of which there is a long list. Science has repeatedly shown that pasteurization does not materially alter the taste, creamline, vitamin or food value of milk, and moreover, children thrive better on pasteurized milk than on raw milk. As physicians we should consistently recommend the use of only pasteurized milk and dairy products. The Council on Foods and Nutrition of the American Medical Association is quoted in the Journal of November 16, 1940, as follows: "The pasteurization of milk is a public health measure. The public should demand pasteurized milk for drinking and the use of pasteurized milk in milk products. The dairy trade should universally adopt pasteurization in the interest of public health."

Kansas City, Kansas, is endeavoring to safeguard its milk supply. Dairymen have the choice of either testing their herds or of pasteurizing their milk. Seventeen new farm dairy pasteurizers have been installed so that today about ninety per cent of all milk sold in the city is pasteurized. However, raw milk still sold in the city continues to come from infected cows as evidenced by the fact that, at present writing, we continue to isolate the Brucella abortus from raw milk. Eleven cases of undulant fever were reported in the first six months of 1941 due to raw milk.

All of our laboratory work on milk was done by the Kansas State Board of Health Laboratories.

Undulant fever is a disease of major importance in Kansas because we are a dairy state, and so all physicians should be on guard against it. Dairymen, grocers, restaurant owners, and others handling and serving milk to the public should be warned that they may be held liable for illnesses caused by their infected raw milk.

ADRENAL CORTEX CARCINOMA

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Masculinizing malignant tumors of the adrenal cortex are so infrequent as to render the reporting of each new case almost obligatory. The wide gaps in our present knowledge of adrenal pathology can be spanned only by the accumulation of integral facts gleaned from individual case reports.

Since the variations of this syndrome according to sex and age period have been so thoroughly discussed in the recent literature,[2,4,7,12] for the sake of brevity we shall confine our discussion to the salient features of the clinical picture in the post-adolescent female. The most frequently described phenomena are those of masculinization: 1. hirsutism involving the face, neck, extremities, and pubes with the development of the typical male escutcheon; 2. deepening and hoarseness of the voice; 3. amenorrhea; 4. atrophy of the breasts; 5. changes in sexual attitude with loss of libido and occasionaly a tendency to homosexuality; 6 enlargement of the clitoris; 7. involution of the external genitalia. Other frequent findings are obesity, acne or even seborrheic dermatitis, hypertension, purplish striae, florid complexion and asthenia. The laboratory may prove helpful by demonstrating polycythemia or deranged carbohydrate metabolism.

The demonstration of a mass in either suprarenal

area by palpation, or by roentgenograms after air insufflation, or pyelograms, obviously renders more secure the diagnosis of adrenal cortex tumor.

In 1924 Keyser and Walters[1] reported a case of adrenal cortical tumor showing evidences of a multiple endocrinopathy with many features pointing to an adrenal cortical tumor, which at operation proved to be carcinoma.

Lescher[2] in 1935 supplements the report of a case of masculinizing adrenal cortical malignancy with a discussion of the metabolic processes involved quoting rather extensively from the literature. He also stresses the similarity of this syndrome to pituitary basophilism (Cushing),[3] while Cahill et al one year later mention arrhenoblastoma of the ovary as a third possibility in the differential diagnosis. The latter authors depict with considerable clarity the various forms of the adrenal cortical syndrome manifested at different stages of growth and development and classify connective tissue neoplasms of the suprarenal as a complement to Goldzieher and Ewing's classification of medullary and cortical tumors respectively. Ten illustrative cases with characteristic secondary sexual manifestations were simultaneously presented by the authors (Cahill et al) in five of which proven suprarenal cortical carcinoma was demonstrated.

An adenoma of a solitary adrenal was responsible for the clinical syndrome of pituitary basophilism in a young woman observed by Lukens, Flippin, and Thigpen.[5] These authors coincidentally reported decreased carbohydrate tolerance in forty-nine per cent of fifty-five proved cases of tumor or hyperplasia of the adrenal cortex.

Lawrence[6] reported three cases, two of which seem sufficiently interesting to warrant further comment here. The first, a thirteen-year-old girl presented symptoms of precocious menstruation followed by masculinization with amenorrhea of seven years duration. Extirpation of an encapsulated cortical tumor effected complete regression of symptoms, although previous laparotomy had revealed only sclerotic ovaries. In the second case, a twenty-four-year-old female, hormone assays of blood and urine were negative for prolan and estrin, and positive for testicular hormone although physical examination disclosed no masculinizing characteristics. The symptomatology was primarily hypoglycemic in character.

Walters and Keplar[7] reported the successful surgical removal of adrenal cortex tumors in seven consecutive cases presenting classical secondary sexual changes, emphasizing the importance of continuous pre- and post-operative vigilance. They expand the clinical picture to include purplish striae, florid complexion, acne, hypertension, decreased carbohydrate tolerance, osteoporosis and asthenia — factors relatively common to all cases irrespective of age or sex.

The importance of these observations is illustrated by a case with hypertension, osteoporosis and amenorrhea as the outstanding features, in which hair on the upper lip was the only masculinizing characteristic; adrenal cortical malignancy was proven.[8]

In 1938 Eliason[9] reported two cases of adrenal cortical syndrome, and a third, due to benign adenoma of the cortex was added by Scholl.[10]

The cytological studies of Strohl[11] constitute a significant adjunct to the pathology of the adrenal cortex.

Potter[12] prefaces the report of a case of adrenal cortex tumor by a fairly complete general discussion of the clinical picture in this condition.

More recent contributions include an extensive discussion by Gross[13] of the various neoplasms producing endocrine disturbances in childhood, in which several cases of adrenal cortex tumor are presented. Crooke and Callow[14] discuss the differential diagnosis of forms of Cushing's Syndrome, reporting two cases of malignant tumor of the adrenal cortex. Another case is presented by Tenenbaum[15] in which the diagnosis was materially aided by retrograde pyelography. Cope and Schatzki[16] introduce a simple and safe technique for perirenal air insufflation which has subsequently been satisfactorily used by one of us.

An interesting discussion of the relationship of the adrenal cortex to secondary sex characteristics with illustrative excerpts from operative cases is given by Broster.[17] Several other articles and case reports of this interesting syndrome appear in the recent literature.[18-30]

CASE REPORT

A. P., a twenty-three year old white female, was first seen in the office April 16, 1938, complaining of edema of the feet and ankles and frequent, severe headache for the past year. Nocturia two to five times and frequency had been present for some months preceding the edema, occasionally with burning on urination. She had noticed spots before her eyes and dizziness for several months. Anorexia, night-sweats, and a nonproductive cough had been present for an indefinite period. The menses had been regular until June, 1937, when she entered upon a period of amenorrhea, which had persisted until March 15, 1938. At that time she started flowing profusely and continued to flow daily, varying from spotting to profuse flow, until her first visit. Physical examination at that time revealed a fairly well developed, tired-looking, young female with no observable abnormalities. Vaginal examination revealed an intact hymen with a small amount of apparently normal menstrual bleeding. Upon rectal examination the uterus was felt in second degre retroversion. Laboratory examination, consisting of complete blood count, urine analysis, and sedimentation rate, was all within normal limits. She was treated with anterior pituitary extract and anterior pituitary-like substance from pregnancy urine for four

months, during which time she continued to menstruate small amounts daily and her edema underwent alternate remissions and recurrences.

On admission to Saint Margaret's Hospital August 25, 1938, essentially the above history was obtained with the additional fact of five pounds loss of weight in the preceding two weeks. Physical examination at this time was essentially negative except for the following observations. The breasts were not well developed. A mild scoliosis was present. A few coarse rales were heard in both midlung fields. There was definite hypertrichosis of the extremities. Laboratory examination revealed urine, complete blood count, sedimentation rate, and blood chemistry (including NPN, creatinine, uric acid, sugar, calcium, phosphorus, carbon dioxide, chlorides, cholesterol, and total protein) to be in normal limits. A diagnostic curettage yielded a fair amount of endometrial tissue, diagnosed from histologic sections as acute and chronic endometritis. She was dismissed August 30, 1938, unimproved.

During the ensuing nine weeks she was treated with repeated injections of anterior pituitary extract and anterior pituitary-like hormone, sedatives, and fluid and salt restriction. Her metrorrhagia continued. The edema extended to the face and neck. Her blood pressure gradually became elevated to 150 systolic, 110 diastolic. Marked weakness and fatigue were complained of constantly. Pain in the right lumbar region appeared, and a mass was noted in the right upper quadrant extending three to four fingers' breadth below the right costal margin. She was readmitted to Saint Margaret's Hospital November 3, 1938.

Readmission physical examination revealed a fairly well developed, poorly nourished white female, lying restlessly in bed, complaining of backache and of perineal soreness. The hair was dry and stringy. The face and shoulders were covered with a purplish, acneform eruption. Many dark, coarse hairs occupied the cheeks and upper lip. Upon questioning, the patient stated she had noticed their appearance in the past few weeks. The skin generally was oily and coarse. The breasts were atrophic, having definitely regressed in size since previous admission. The examination of the eyes, ears, nose and throat, heart, and lungs revealed no abnormalities. Examination of the abdomen revealed a mass in the right upper quadrant, palpated with some difficulty because of extreme tenderness and muscle guard. The pubic hair extended up to the umbilicus in typical male distribution. The dark hair on the arms and legs was noticeably increased. Pelvic examination revealed a small amount of foul, brownish discharge flowing through the reddened, inflamed introitus. With some difficulty the uterus was felt in second degree retroflection, and the adnexa were found to be tender. No definite mass was palpated. Neurologic examination was negative.

During the next three weeks the patient became slowly worse. Repeated complete blood chemistries were within normal limits. Unfortunately serum sodium and potassium were not determined. Urine analysis, liver function tests, serologic studies, roentgenographs of the chest, sella turcica, and gastrointestinal tract were negative. A gastric analysis showed normal acidity.

It was felt the diagnosis lay between arrhenoblastoma of the ovary and adrenocortical tumor. On November 27, 1938, intravenous pyelograms showed the right diaphragm elevated and the right kidney pelvis pushed downward, making the last named diagnosis the most probable. November 28, 1938, the abdomen was explored through an upper right rectus incision. Carcinomatous nodules were found in the liver. A large tumor mass was seen in the right adrenal region. Biopsy of a liver nodule was taken. The postoperative course was rapidly and progressively downhill with jaundice, nausea, vomiting, distension, and delirium until death, December 6, 1938.

PATHOLOGY

At necropsy, performed two hours after death, external findings included icterus, hirsuties, and high grade edema of the lower trunk and extremities. Examination of the heart and lungs revealed no significant pathology. The abdominal cavity contained approximately 3000 cc. of sanguinous fluid. The liver and other abdominal viscera were displaced to the left by a large retroperitoneal mass in the right flank. The liver was moderately enlarged and contained numerous nodular masses of light yellowish brown color varying from two to eight cm. in diameter (Fig. 3). Only one-third of the liver mass was actual liver tissue. The gall bladder and biliary passages were patent and free of pathology. The kidneys showed no intrinsic pathology. The left adrenal gland weighed five grams and showed a normal amount of cortical and medullary tissue, and the microscopic structure was normal.

Fig. 1. Anterior aspect of adrenal tumor: a. Wall of adrenal vein reflected to show tumor mass filling its lumen and extending into inferior vena cava, b.; c. Tumor mass; d. Mouth of renal vein; e. Lower pole of right kidney.

Fig. 2. Posterior aspect: a. Aorta; c. Tumor mass; d. Ureter; e. Kidney.

Fig. 3. Cross section of liver showing massive metastases, b-b, compressing liver substance, a.

The right adrenal gland was replaced by a large ovoid tumor mass measuring sixteen by ten by five cm. and weighing 1270 grams. The tumor extended past the mid line to the left, and lay in a position betwen the aorta and the inferior vena cava so that the vena cava was stretched and flattened over its anterior surface (Figs. 1 and 2). The cut surface of the tumor showed a densely cellular, yellowish-

brown tissue with alternate areas of necrosis and hemorrhage, and a few areas of dense white cellular tissue. Microscopically, the tumor was made up of large numbers of oval, rounded, or polyhedral cells incompletely separated by trabeculae, and showing no tendency to alveolar formation. In many areas the tissue resembled the zona reticularis of the normal adrenal cortex. Occasional atypical mitotic figures were seen. The uterus was of normal size and the endometrium appeared somewhat hyperplastic. The ovaries were of normal size but showed areas of interstitial hemorrhage on the surface.

In a review of 7,000 autopsies at the University of Kansas Hospitals, 143 cases of adrenal tumor were found, of which eighty-four were primary and fifty-nine secondary. Of the eighty-four primary tumors, the following were found:

Lipoma	1
Paraganglioma	6
Benign adenoma	67
Angioma	1
Lymphangioma	1
Endothelioma	1
Neuroblastoma	2
Cortical carcinoma (adenoma malignum)	5
Total	84

SUMMARY

1. A case of adrenal cortex carcinoma with autopsy findings is reported.

2. Virilism as the chief clinical feature is stressed.

3. Retrograde pyelograms proved helpful in localizing the tumor mass.

4. A review of the incidence of primary and secondary adrenal tumors in 7,000 autopsies is given.

Note: The authors wish to express their gratitude to Dr. P. M. Krall and Dr. H. R. Wahl for their cooperation in this case study.

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CLINICAL OBSERVATIONS ON THE USE OF DEPROTEINATED PANCREATIC TISSUE EXTRACT* IN SURGICAL AND ROUTINE CATHETERIZATION

H. E. Neptune, M.D.

Salina, Kansas

Any agent which may be relied upon to facilitate certain types of instrumentation such as ureteral or urethral catheterization in a reasonable percentage of cases, constitutes an important addition to the surgical armamentarium.

It has been known for some time, dating from the original work of Frey and Kraut[1], that extracts of various tissues contain substances possessing definite pharmacodynamic properties, among which is the ability to cause marked relaxation and dilatation of the ureters. The exact mode of action is as yet not clear, but it appears to be entirely local, and is unaccompanied by systemic manifestations.

Carroll and Zingale[2] have studied the use of pancreatic tissue extract from a urological standpoint and state that its effectiveness has been demonstrated

*Depropanex, Sharp & Dohme.

in: (1) Renal colic, due to stone, stricture, kink and spasm. (2) Post cystoscopic colic. (3) In facilitating passage of a catheter beyond an otherwise impassable ureteral stone. (4) Instrumental removal of calculi in lower ureter.

We have been using for the past year a deproteinated pancreatic tissue extract which, because of its refinement over cruder extracts, has the advantage of causing less local irritation at the site of injection. Wright et al[3], who used this preparation in the treatment of intermittent claudication, state that in over 1000 injections no untoward reactions were observed.

This extract is a saline solution of a chemically purified protein-free nitrogenous fraction derived from an acid alcohol extraction of bovine pancreas. On the basis of physiological tests it is said to be free from insulin, histamine and acetylcholine. Its solids content is approximately 2.5 per cent, including 0.5 per cent non-protein nitrogen, 0.9 per cent sodium chloride, 0.25 per cent phenol which is added as a preservative. The pH of the solution is approximately 6.5.

It is assayed by comparing its effect upon the arterial blood pressure of anesthetized dogs with that of a standard preparation. The standard preparation was adopted after it was shown that one cc. produced, in a large series of dogs, an average lowering in arterial blood pressure equivalent to the rise in arterial blood pressure produced by 0.01 mg. of epinephrine, in the same dogs. The standard is preserved by the lyophile process and stored in the dried state at five degrees C.

Because of the striking results which we have noted in those cases in which this extract has been used, we believe that a brief report of the following cases will be of interest:

CASE REPORTS

Case I—Girl seventeen years of age was referred with a diagnosis of appendicitis. At time of examination she complained of right sided pain and nausea. She was feverish, but no leucocytosis was present. On cystoscopic examination it was found impossible to enter the right ureter because of spasm.

Five cc. of Depropanex were administered intramuscularly at this time. Within ten minutes a No. seven French catheter was passed without difficulty, sixty cc. of urine being emptied from the kidney pelvis. Following repeated dilations the patient has apparently been relieved of all symptoms.

Case II—A forty-five year old male had suffered from repeated attacks of renal colic resulting from a stone lodged in the ureter at the pelvic constriction. The position of the stone had remained unchanged for two weeks. Following the intramuscular injection of five cc. of Depropanex, three No. five catheters were passed beyond the stone and left indwelling for twenty-four hours. At the end of this time another five cc. of Depropanex were given and the catheters removed. The stone was passed spontaneously at the patient's next urination.

Case III—A woman thirty-three years of age had suffered from a stone two cm. in diameter which had lain at the left uretero-vesicular junction for several years without completely blocking the flow of urine from the left side. The left kidney was markedly hydronephrotic.

Following a ureteral meatotomy, ten cc. of Depropanex were administered intramuscularly. The stone was passed into the bladder, from which it was removed the following day.

Case IV—A twenty-seven year old male was seen suffering with renal colic. Ureteral catheterization was attempted without success. Five cc. of Depropanex were then given, and after a lapse of ten minutes it became possible to pass two No. five catheters beyond the stone. The catheters were then withdrawn and a stone about the size of a small pea removed at the same sitting.

We have also administered Depropanex in amounts of five cc. to thirty cases ten minutes prior to retrograde pyelography. In no case was post instrumental colic observed.

CONCLUSIONS

1. The use of a chemically purified deproteinated pancreatic tissue extract in four cases of renal colic and thirty cases having retrograde pyelography is reported.

2. This extract exerts a marked dialating effect upon the human ureter.

3. No local reaction or untoward effects were noted in this series of cases.

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At the request of the Surgeon General of the Army and Navy, the American Red Cross will extend its blood collection program to certain metropolitan cities on the Pacific coast and in the Midwest. At present seven eastern cities are engaged in the project of collecting and shipping blood by refrigerated express to a processing depot at Philadelphia where it is reduced to dry plasma form for the use of the Army or Navy. Arrangements are being worked out with biological laboratories in the Midwest and Pacific areas for processing blood collections received from the cities to be added.

Plans for extending the collection program were announced following completion of a "pilot" project in which blood donors of the seven eastern cities filled an initial request of the Navy for 15,000 donations. It was explained that most of these after being processed and hermetically sealed, already have been placed aboard U. S. fighting ships engaged in the Atlantic sea patrol.

"The present emergency requires that the Red Cross take every necessary step to provide as soon as possible an adequate supply of plasma for the Army and Navy—Some 200,000 donors will be needed to fill current requests of our military and naval forces. Extension of the collection program will enable the Red Cross to meet these requests.

President's Page

To the Members of The Kansas Medical Society:

Another Armistice Day has passed, a comparatively short span of years has brought the medical profession again face to face with the problems of war.

The depletion in our ranks will greatly add to our duties in serving the public at home. May we not in any manner shirk the added duties imposed upon us in this period of National emergency.

Neither must we as a Society even temporarily forget the problems of organized medicine in our State.

Truly we may view with pride the accomplishments of the past. Let us not be satisfied until the economic problems are solved statewide. Certainly through the guidance of our able committees a satisfactory solution of the patient-physician relationship may be maintained.

Through the many other committee activities, let us hope to build constructively in developing methods to control the ravages of accidents and disease. Efforts during this year are already bearing fruit and other accomplishments are in the making which will also in due time be recognized as milestones along the road of medical progress in Kansas.

Sincerely yours,

Clyde D. Blake, M.D.

EDITORIAL

THE DOCTOR AND HIS STATE MEDICAL JOURNAL

There is nothing more reassuring to the active doctor as he passes rapidly from one medical problem to another, than his recourse to reading. Medical journals are more important than text books to the physician who reads. Text books are valuable as sources of reference. The established habit of thoroughly reading medical periodicals forms a background of knowledge. Text books are usually out of date by the time they are published. Medical periodicals constitute a steady flow of current research, clinical study and the record of the application of new knowledge. To keep alive in any branch of medicine it is necessary to cultivate the habit of diligence in reading. An orderly mind will remember a great deal which is read. The possessor of such a mind, wishing to re-read some particular article, will know where to find it. He will have a file where he can put his hand on it. Reprints are obtained by writing to authors. An indexed file of reprints is a valuable adjunct to a doctor's private medical library.

We have reason to suspect that Kansas physicians read their Journal, and we are under the impression that likewise, in other states their own journals are read well. In going over our exchanges we are impressed by the high type of scientific material which they present each month. In fact the sustained high quality of medical literature published from month to month in the state medical journals compliments the high standard of medical practice throughout the United States. The medical periodicals of the specialties are necessary to those practicing in the special fields, but to the rank and file of the medical profession the medical journals published by the state medical societies form the supporting structure of current medical literature.

ARE WE HEALTHY?

Periodically some major event occurs which tends to renew public attention on health. The first World War awakened National interest by the astonishing discovery that, for the country as a whole, thirty-one per cent of the supposedly best age group of our men fell below the physical standards for active military duty as set up by the Draft Boards. By states, rejections varied from eighteen per cent to fifty-eight per cent with Kansas in fifth place with twenty-one per cent.

Again today we are given statistics showing that approximately the same proportion of young men are being rejected. We try to rationalize and explain the lack of improvement in the intervening twenty-four years by saying that now our standards of physical fitness are higher and our technic of examination more refined. Perhaps this is true in some respects, but it does not explain why today three times as many have been rejected for defective vision and twice as many for ear defects as in 1917.

Good health is an intangible state that is difficult to define. For purposes of our discussion we may say that one is in good health if he is free from illness and structural defects, possessed of the physical and mental capacity to perform an average amount of work or other physical activity without undue fatigue and with enjoyment in the doing. Our measure of health is a composite one including an appraisal of physical structure, functional abilities and mental capacity and stability. By standards set up in each of these fields we can arrive at an interpretation of the physical and mental health of the individual in relation to the average.

Actually, what is the state of our health? We know that the average life expectancy for the child born today is sixty-two (62.78) years as compared with the life expectancy of forty-nine years in a child born in 1900. This has largely come about by the improvement in living conditions, in control of contagious disease and in advances in medicine. For example, the rate of infant mortality has been reduced fifty per cent in the past twenty-five years. Mass immunization of school children against diphtheria has greatly reduced the incidence, and correspondingly the resulting deaths and disabilities. Small pox has steadily declined in prevalence and escapes eradication only by the reluctance of some people to be protected by vaccination. Modern sanitary engineering has practically controlled typhoid fever. In communities having standard milk ordinances milk borne diseases have suffered a similar fate.

A study of the physical examination records of University of Kansas students gives use a picture of the health of this age group and a clue to the health of the families from which they come. We grant that this is a select group, both in age and income level. Data from other colleges is comparable, and shows a higher proportion of these young men measuring up to the Selective Service requirements than is found in the general population at the same age level. For example, here at the University of Kansas eighty-three per cent of the men are physic-

ally fit for military service whereas approximately sixty-seven per cent of the men called for examination by the Kansas Selective Service Boards have been passed.

Analyzing the data on students entering the University of Kansas this fall we find that nine per cent are ten pounds or more over the maximum weight for their height and age; 2.5 per cent of the women and eight per cent of the men are an equal amount below the minimum standards. Only seventeen per cent have no visible teeth defects. The remainder average slightly more than four defective teeth each. Thirty-six per cent have impaired vision. Approximately thirty-five per cent show positive reactions to the tuberculin test, but only 0.43 have evidence of secondary (or adult) type of tuberculosis and only 0.16 per cent have active tuberculosis.

Many of these defects are correctable in this group and preventable in future generations. Dental defects and abnormalities of weight and growth depend largely upon diet. Diet of the mother before the child is born and diet of the growing child. Much of the defective vision is the result of childhood infectious diseases, poor nutrition and improper use of the eyes. Infection accounts for most of the ear and many of the nose defects, altho some of the nasal abnormalities are structural or the result of injury. Early in life many of these structural anomalies can be corrected but by the time college age is reached the opportunity is often past. When infectious diseases or congenital abnormalities are the causes of poor response of the heart and circulatory system to exercise, little can be done, but in the many cases where the cause is malnutrition, use of stimulants or lack of conditioning exercise, considerable improvement may be expected.

We have at our disposal the means of greatly improving the general physical efficiency and health of many who cannot measure up to the optimum standards. We can achieve this improvement by taking greater interest in nutrition, by recognizing and using the known methods of protection against preventable diseases, by obtaining adequate rest and by developing physical stamina through work and recreational activity.—A radio broadcast over station KFKU on October 10, 1941, by Ralph I. Canuteson, M.D., Director, Health Service, Watkins Memorial Hospital, University of Kansas.

Every physician is his own public relations counsel, and every contact he makes with his patients and friends hinders or advances the position of himself and his colleagues in the hearts and minds of the public.—Bulletin of the Jackson County Medical Society.

MEDICAL SCHOOL

THE ACUTE STAPHYLOCOCCAL INFECTIONS OF THE KIDNEY

W. G. Gordon, M.D.*

Kansas City, Kansas

The common renal infection, known variously as acute pyelitis or acute pyelonephritis, is a clinical picture well known to all who practice medicine. This type of infection may be due to any organism but is most commonly caused by the colon bacillus. It is characterized by renal pain, chills, fever, and usually symptoms of bladder irritation—frequency and dysuria. There is an abundance of pus in the urine, and staining of the urinary sediment will reveal the offending organism. Such infections are often called "ascending" pyelonephritis, since the most common belief is that the infection ascends to the kidney, either lymphogenously or via the urinary tract itself.

The present description, however, is concerned with an entirely different and much more rare type of renal infection; namely, the acute hematogenous staphylococcal infection of the kidney, or, more conveniently, the "Coccus Kidney." This has, because of its rarity, received much less recognition in the literature, and usually goes undiagnosed because the examiner fails to consider it. This renal infection, however, is of considerable importance because in its acute stage, it may present the picture of an acute surgical abdomen with an entirely normal urine. It is also important to recognize this type of acute renal infection because about ten per cent go on to develop complications which require early surgical intervention.

The pathogenesis of the Coccus Kidney resembles that of renal tuberculosis since the causative organism reaches the renal parenchyma by the blood stream from a distant focus and because the early lesion is in the cortex of the kidney. Active focal staphylococcal infections, infections such as furuncles, carbuncles and osteomyelitis, may be demonstrated in thirty-five per cent of the acute cases. The causative organism is the staphylococcus aureus in the majority of cases. These organisms establish single or multiple foci of infection in one or both kidneys, and the onset of this infection is heralded by a very characteristic clinical picture.

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*From the Department of Surgery, University of Kansas Hospital.

"At the menopause 80 per cent of women experience general symptoms of varying character and intensity[1]."

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JEFFCOATE,[1] in a paper on estrogenic hormone therapy, states that 80 percent of women experience menopausal symptoms varying from the well-recognized vasomotor disturbances to those of vaguer character such as headaches, emotional instability, depression, anxiety and muscle pains. In a large percentage of cases these symptoms can be eliminated by adequate estrogenic therapy.

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[1] Jeffcoate, T. N. A.: *Brit. Med. J.* 2:671 (Sept. 30) 1939.

For literature address the Professional Service Department, E. R. Squibb & Sons, 745 Fifth Avenue, New York, N. Y.

Amniotin — A SQUIBB PREPARATION OF ESTROGENIC SUBSTANCES OBTAINED FROM THE URINE OF PREGNANT MARES

The patient develops, rather suddenly, pain over the affected kidney or, over both kidneys if the disease is bilateral which is much more rare. This pain is seldom as severe as renal colic but tends to be dull and aching and is not always sharply localized. Fever varying from 101 degree to 105 degrees is usual and may be accompanied by chills. Leucocytosis ranges from 12,000 to 20,000 W.b.c. per H.P.F. But an interesting and important difference occurs here between the "coccal" kidney and the commoner "ascending" infection. In the cocal kidney, the urine is at the onset entirely normal and there is never frequency of urination or dysuria. This is because the infection in the kidney is still cortical and has not communicated with the collecting tubules. The urine, therefore, does not reflect the renal infection.

It is apparent that unless this specific entity is considered at this time, since the urine is negative, that an erroneous diagnosis of a surgical abdomen may well be made. On the right side, retro-cecal appendicitis may be misdiagnosed or one may suspect acute cholecystitis or acute hydronephrosis. Renal colic, often diagnosed under this circumstance, should not produce this amount of fever.

After twenty-four to forty-eight hours, showers of cocci begin to appear in the urine, and it is imperative that repeated stains be made of freshly obtained urine, since the cocci may appear only intermittently, and until they are demonstrated, the diagnosis cannot be confirmed. Obviously, such specimens must be second glass specimens in the male and in the female must be obtained by catheter. After three to five days, pus as well as cocci appears in the urine. After a week, a secondary infection with the colon bacillus occasionally is superimposed.

THE COURSE OF THE DISEASE

Even before the advent of the sulfonamide substances, nine patients out of ten became completely well within seven to ten days with complete disappearance of symptoms, fever and renal infection. This is probably because the renal cortex which has an extremely generous blood supply, is able to resolve the tiny, almost microscopic cortical abscesses. However, in ten per cent of the patients, one of the two complications of acute coccus kidney results: namely, (1) cortical abscess or (2) perinephric abscess. One may say definitely then, in any patient in whom there persists significant fever and renal pain ten days after the onset of the acute coccal kidney, one complication or the other is present and prompt surgical intervention is indicated.

A further discussion of the complications is worth while since the patient is frequently not seen until the complication is present.

CORTICAL ABSCESS

Cortical abscess is the less common of the two complications. It occurs when the microscopic abscesses of the original infection fail to be resolved by the defensive mechanism of the kidney. In this event the complications. It occurs when the microscopi abscesses of the original infection fail to be resolve by the defensive mechanism of the kidney. In thi event, the abscess increases in size and the patien continues to have flank pain and fever. If several cor tical abscesses are present, the condition is referre to as "Carbuncle of the Kidney." It is well to remem ber that the abscess may wall itself off and the urin will be normal in some cases.

Diagnosis is established by obtaining a history o acute staphylococcal infection of the kidney with per sistence of the fever and flank pain. The pyelogram vary in appearance but may be like those of renal tumor if there is a walled off cortical abscess. Othe cases may show communication of the abscess cavities with the renal pelvis. Treatment consists o draining the cortical abscesses through a loin incision. Nephrectomy is rarely indicated since the kidney shows remarkable reparative powers once the abscess is drained. It is also well to remember that occasionally the disease is bilateral in which event, nephrectomy would be a disaster.

PERINEPHRIC ABSCESS

The second complication is perinephric abscess. This occurs more commonly than cortical abscess. In this situation, the infection penetrates into the perinephric fat and causes a severe perinephric infection with abscess formation. Again the urine is often entirely normal since the process in the kidney heals completely. The complication is suspected if fever persists for ten days after the acute coccal infection. Perinephric abscesses are overlooked as a cause of fever since the examiner may be misled by the absence of urinary findings. The diagnosis is confirmed in suspected cases by certain physical and roengenographic signs. The physical signs are tenderness and spasm in the affected flank, occasionally a palpable mass, and, if the abscess is very large, pitting edema of the suprajacent skin. Paranephro bronchial fistula has been reported in neglected cases where the infection perforates through the diaphragm. Psoas signs may occur where the psoas muscle is irritated. The x-ray signs are: (1) obscuration of the psoas shadow; (2) sometimes scoliosis with the concavity toward the affected side, and; (3) fixation of the kidney on respiration.

Treatment of this type of paranephric abscess is simply incision and drainage Since the kidney has healed, it should not be disturbed.

SUMMARY

The rather rare hematogenous staphylococcal infection of the kidney is a metastatic infection from a focus elsewhere in the body. In its incipiency, a characteristic clinical picture is presented but the

KARO FORMULAS FOR NORMAL INFANTS

AGE—TWO WEEKS
Milk.....10 ozs.
Water.....10 ozs.
Karo syrup..... 2 tbs.
3 ozs. every 4 hrs.—6 feedings

AGE—ONE MONTH
Milk.....12 ozs.
Water.....13 ozs.
Karo syrup.....2½ tbs.
4 ozs. every 4 hrs.—6 feedings

AGE—TWO MONTHS
Milk.....15 ozs.
Water.....13 ozs.
Karo syrup..... 3 tbs.
4½ ozs. every 4 hrs.—6 feedings

AGE—THREE MONTHS
Milk.....17 ozs.
Water..... 9 ozs.
Karo syrup..... 3 tbs.
5 ozs. every 4 hrs.—5 feedings

AGE—FOUR MONTHS
Milk.....20 ozs.
Water.....11 ozs.
Karo syrup.....3½ tbs.
6 ozs. every 4 hrs.—5 feedings

AGE—FIVE MONTHS
Milk.....23 ozs.
Water.....11 ozs.
Karo syrup..... 4 tbs.
6½ ozs. every 4 hrs.—5 feedings

AGE—SIX MONTHS
Milk.....26 ozs.
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(2) The amount of added Karo syrup required will be about one-tenth of the quantity of milk used, i.e., 0.15 to 0.2 ounces per pound (0.1 to 1.13 grams per kilo) of expected body weight per day, or one-third to one-half the total calories required for the infant.

(3) The total caloric value of the formula should be approximately 50 to 55 calories per pound (110 to 115 calories per kilo) of body weight per day.

(4) The amount of water added to the formula will be two to three ounces per pound (130 to 200 cc per kilo) of body weight per day; and the amount of water added to the formula for the 24-hour period depends upon the degree of dilution required to render the mixture digestible.

(5) The amount of formula offered at a feeding during the first few months is expressed by the rule—Age in months plus two ounces at four-hour intervals."

KUGELMASS: "*Newer Nutrition in Pediatric Practice.*" 1940.

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urine is normal. After twenty-four to forty-eight hours, the urine begins to reflect the renal pathology and the diagnosis may be confirmed. Ninety per cent of the cases recover completely and spontaneously within ten days. Persistence of fever and flank pain after ten days indicates that either a cortical abscess or a perinephric abscess has formed and surgical interference is then indicated.

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TUBERCULOSIS CONTROL

PREVAILING TUBERCULOSIS INFECTION RATE

Kurt E. Lande

Georg Wolff

In 1900 Naegeli published a careful report of 508 autopsies. Of the adults over eighteen years of age ninety-three per cent showed healed, inactive or active tuberculous lesions in the lungs. Only seventeen per cent of those under eighteen yielded positive findings. Other investigators substantiated these findings and in the early years of this century the belief was prevalent that all adults had at some time suffered an invasion by the tubercle bacillus.

Opie as late as 1917 found positive evidence of infection in all of fifty autopsies on adults and in nearly twenty-four per cent of a group of ninety-three children, the latter showing a far higher figure in the adolescent years. It was these findings that led Opie to remark, "Almost all human beings are spontaneously 'vaccinated' with tuberculosis before they reach adult life."

In 1922 Wason reported positive findings in eighty-two per cent of his autopsies and in 1925 Lambert and de Castro Filho reported a rate of 72.8 per cent in a large series from Brazil. As late as 1927 Todd still found evidence of tuberculous infection in sixty-nine per cent of autopsies done in Edinburgh on patients who had died of some cause other than tuberculosis. Such evidence indicates rather clearly that decline in infection rate has not kept pace with mortality from this disease.

The present study was carried on at the Washington County Hospital in Hagerstown from September, 1938, to August, 1940, all autopsies being performed by the same pathologist. There were 176 autopsies during this period which represented forty-five per cent of the deaths which occurred. Eleven of these were rejected because they were not complete postmortems leaving 165 which are included in this report. Cases of active tuberculosis are not admitted to the hospital. The population of Washington County is semi-rural and most of the patients were long residents, from all classes of society and of the white race (only four Negro adults in the group).

Thirty-two of the 165 necropsies were done on children and 133 on adults. For the whole group positive findings were recorded in sixty-five or 39.4 per cent which is just half of Naegeli's findings, 79.9 per cent, when he included all ages.

Considering only the adult group of 133 cases, the positive evidence of infection yielded 47.4 per cent, again strikingly near one-half the number of adults found to be infected by the earlier researches of Naegeli, Burkhardt, Opie and others. In this series there were five cases where infection was suspected but could not be proved pathologically. If these are included the percentage would stand at approximately fifty.

This finding of almost fifty per cent of positive tuberculosis among an unselected group of a semi-rural population indicates that the frequency of tuberculosis is still sufficient to be alarming. If one assumes this experience as typical of the country as a whole, which seems reasonable, we must still face the fact that at least half of all adults have suffered invasions by the tubercle bacillus active enough to leave discoverable scars. This is disconcerting in face of the far greater fall in the death rate from the disease.

At the same time there is some compensation in the discovery revealed by this study that only one-half as many people who have suffered tuberculous infection actually die of the disease as was the case forty years ago. The infection rate has been reduced to fifty per cent, the mortality to twenty-five per cent of that in 1900. A number of factors have probably contributed to this gratifying preponderance in the decline of the death rate. Better sanatorium care and the management of cases has undoubtedly made a large contribution. The fact that lessening of the infection rate has apparently shown acceleration in the past fifteen or twenty years brings comfort both to those engaged in the preventive and therapeutic aspects of tuberculosis control. A fifty per cent reduction in the reservoir of spreaders must certainly mean that fewer contact cases are today submitted to massive and repeated doses of infected material. The contribution of compression therapy and surgery to this result can but be inferred. Those who advocate freer use of these measures certainly

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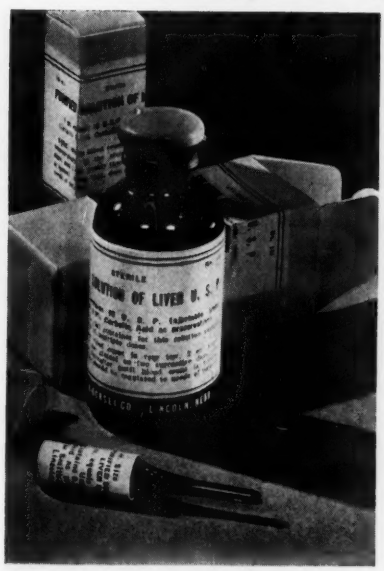

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would seem to have little for which to apologize in the evidence presented by this study.

However, there are other factors in the picture which perhaps deserve first mention. Isolation is the time-honored scheme for the control of epidemic, infectious disease. It is a significant coincidence that during the period when tuberculosis mortality was reduced to one-quarter its 1900 level and infection rate cut by fifty per cent, the sanatorium beds in this country increased from about 6,000 to 100,000. It would be idle not to recognize this prophylactic procedure as an outstanding influence in lessening opportunity for infection among the general public.

The result of this procedure would have been far more striking had it been possible to arouse the medical profession to its responsibility in finding the early case and effecting its immediate isolation. Unfortunately, this is one of the weaker links in our control program. From three-quarters to four-fifths of all cases admitted to sanatoria are still found to be in the advanced stages of the disease, already probable spreaders of the infection to others. More professional education, both undergraduate and post graduate is still needed to impress upon physicians how truly further progress in tuberculosis control rests in their hands.

Popular health education and school hygiene have also played their parts in reducing opportunities for infection. Beginning with teaching the infectivity of sputum, the transference of disease through common utensils, uncleanliness in restaurants, the menace of infected food handlers, instruction has proceeded to the point where even an open case is of relatively little danger to his fellows if both he and they will exercise the prophylactic measures now recognized as largely effective.

Finally better housing, elimination of industrial hazards, more applied knowledge of the laws of nutrition, and a growing consciousness of the significance of personal and community hygiene, all have played their part in reducing the transmission of tuberculous infection from case to contacts.

A highly significant factor in this study is the observation that reduction of infection as shown at autopsy has been at least as rapid among infants and children as among adults. These younger members of society can make no personal contribution to their own protection. They must rely on that of others, nurses, teachers, parents and relatives. Cutting their infection rate in two as well as that of their elders is clear proof that a better informed public is making an increasingly effective fight against spread of this disease.

Frost in discussing the eradication of tuberculosis wrote as follows: "Tuberculosis also differs from the other directly transmitted respiratory tract infections in that its mortality has declined consistently for the last fifty years or more and continues to decline in every part of this country for which adequate statistics are available. It is not directly established by comparable statistical evidence that there has been a proportionate decrease in the prevalence of infective cases of the disease, taking into consideration not only the number of cases but duration of the open stage. However, there appears to be no good reason to doubt that the prevalence of open lesions effective in spreading the tubercle bacillus has diminished progressively, and continues to diminish in each considerable period of time."

However, it must not be overlooked that, according to present autopsy records, the reservoir of adults infected with tuberculosis at one time or another in their lives still amounts to half of the population. Therefore, tuberculosis can still flare up again whenever external conditions turn to the worse for the bulk of the people. Without such a reverse there exists the hope that further efforts in the campaign against tuberculosis will some day lead to a complete eradication of the white plague.—From Tuberculosis Abstracts, November, 1941. Frequency of Tuberculous Lesions at Autopsy by Kurt E. Lande and Georg Wolff, Amer. Rev. of Tuber., Vol. XLIV, No. 2, Aug., 1941.

NEWS NOTES

MINUTES

The following are minutes of recent committee meetings:

COMMITTEE ON MATERNAL WELFARE

A meeting of the Committee on Maternal Welfare was held in Wichita on September 21.

Members present were: Dr. Ray A. West, chairman; Dr. Letteer Lewis, Dr. Porter D. Brown, Dr. H. C. Clark, Dr. C. O. Merideth, Dr H. R. Ross, Dr. F. E. Wallace, Dr. L. A. Calkins and Dr. F. N. White. Others present were: Dr. C. D. Blake, Dr. St. Clair O'Donnell, Dr. R. H. Maxwell, Dr. Robert Sohlberg and Mr. C. G. Munns.

The minutes of the last meeting of the committee were read and approved with the following exception: That the reference in the minutes pertaining to the plan of mothers' training classes in Cleveland should read "1.1 per thousand live births for persons receiving the lectures as against a rate of 4.0 for the general area" instead of "the maternal death rate dropped from four per thousand live births to 1.1 per thousand."

Dr. Brown reported that the scientific brochure prepared by the committee had been completed and distributed to all Kansas doctors of medicine. Dr. West complimented the subcommittee which handled this activity for its excellent work and stated that he felt the brochure had been well received by the membership.

The next item of discussion pertained to the rules for handling of obstetrical cases and the method of conducting mothers' training classes which the committee at its last meeting had requested be transmitted to the Council for consideration and approval if desired. Clarence Munns

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reported that available time at Council meetings since that date had not permitted these items to be discussed, but that it was believed they could be presented at a meeting of the Council to be held during November, 1941. The committee thereupon expressed its hope that the Council would find it possible to approve both of these matters, in order that certain contemplated programs might be based thereon.

Dr. Clark reported that his subcommittee on incubators had no further report to make at this meeting.

Dr. West presented a letter from the American Committee on Maternal Welfare describing the Second Congress on Obstetrics and Gynecology which is to be held at St. Louis, Missouri, on April 6 to 10, 1942, and requesting that Dr. West appoint a Kansas committee to assist in obtaining membership in the organization and attendance at the above meeting from this state. Dr. West reported that the following committee composed of members of the Kansas Obstetrical and Gynecological Society had been appointed for this purpose: Dr. Porter Brown, Dr. L. R. Pyle, Dr. F. N. White, Dr. Howard Rush, Dr. Robert Sohlberg, Dr. L. E. Haughey, Dr. L. A. Calkins, Dr. Robert H. Maxwell, Dr. St. Clair O'Donnell, Dr. J. M. McGrew, Dr. Letteer Lewis, Dr. C. O. Merideth, Dr. H. C. Clark, Dr. H. R. Ross, Dr. Walter Weidling, Dr. F. L. DePew, and Dr. A. L. Hilbig.

Dr. Calkins commented that this is an excellent meeting, that Kansas should be well represented at the event, and that possibly the above committee should appoint subcommittees in various parts of the state to assist in interesting Kansas physicians in attending the meeting.

Dr. West, Dr. Ross and Dr. Calkins discussed the information on maternal mortality in Kansas obtained from the questionnaires prepared by the committee and forwarded by the Kansas State Board of Health to physicians attending cases wherein maternal deaths have occurred. It was the feeling of the committee that the detailed information obtainable from questionnaires of this kind could provide much assistance in analyzing the causes of Kansas maternal deaths and in making plans for further reduction of maternal mortality in the state. The following action was taken in that regard upon a motion made by Dr. Calkins, seconded and carried:

1. That the committee commends the Kansas State Board of Health for having adopted the plan of obtaining detailed questionnaire data on all maternal deaths.

2. That the committee believes this activity should be continued in the future.

3. That the committee feels it would be of particular value for means to be devised wherein questionnaire information of this kind can be obtained for each maternal death.

4. That the committee also feels there might be advantages in the Kansas State Board of Health appointing a committee of three physicians, whose work is largely limited to obstetrics and who would be willing to meet frequently, to analyze the data obtained from the questionnaires, to prepare statistics and correlate findings thereon, to prepare an annual report on this subject and to make recommendations wherein further reductions in maternal mortality can be achieved.

5. That this committee will be willing to supply assistance of this kind if the State Board of Health so desires.

6. That the above recommendations and comments be forwarded to the Kansas State Board of Health.

The next item of discussion pertained to post graduate courses on obstetrics and maternal welfare. Dr. Ross reported that the Kansas State Board of Health will have funds available for the presentation of additional courses of this kind and that the Board would appreciate receiving the recommendations of the committee as to the type of courses which should be presented in the future. Dr. Merideth reported that the Kansas Obstetrical and Gynecological Society in cooperation with the Kansas State Board of Health is planning to present programs on obstetrics and gynecology at various county medical society and district meetings; that the first meeting of this kind is to be held at Salina on October 2; that arrangements for six other similar meetings have been made; that the county medical societies seem to be interested in this plan, and that this type of post-graduate instruction might tend to be more advantageous for the next several years than the circuit type of post-graduate courses. Upon a motion made by Dr. Brown, seconded and carried, it was agreed that the above plan of post-graduate instruction continue to be experimented with, that a subcommittee of the committee be appointed to study different types of post-graduate activity which might be recommended to the Kansas State Board of Health, and that the subcommittee present a report on this subject at the next meeting of the committee.

Upon a motion by Dr. Brown, seconded and carried, it was agreed that if the Council desires to approve the program of mothers' training classes, and educational activities on that subject should be commenced with lay groups. The suggestion was also made that extensive activity in this direction should be devoted to negro groups.

Upon a motion by Dr. Calkins, seconded and carried, it was agreed that a subcommittee of the committee should be appointed to cooperate with the Kansas State Board of Health in selecting and presenting exhibits on maternal welfare at various state, district, and local lay gatherings.

Upon a motion by Dr. Calkins, seconded and carried, the chairman of the committee was requested to prepare a desk card on obstetrical care for distribution to Kansas physicians.

The possibility of recommending monthly payment plans for obstetrical cases was tabled.

The question was asked as to whether it will be possible for the Kansas State Board of Health to include a statement pertaining to parenatal Wassermann examinations on birth certificates filed by physicians. Dr. Ross was asked to report on this possibility at the next meeting of the committee.

Adjournment followed.

COMMITTEE ON MEDICAL SCHOOLS

A meeting of the Committee on Medical Schools was held at the University of Kansas School of Medicine on October 8, 1941.

Members present were: Dr. Fred J. McEwen, Wichita, Chairman; Dr. Warren R. Morton, Green; Dr. Clay E. Coburn, Kansas City; Dr. Alfred O'Donnell, Ellsworth; Dean H. R. Wahl, Kansas; Dr. F. E. Dillenbeck, ElDorado; Dr. O. W. Longwood, Stafford; Dr. L. R. McGill, Hoisington; and Dr. Fred E. Angle, Kansas City. Others present were Dr. C. D. Blake, Hays; Dr. O. O. Stoland, Lawrence; an Mr. C. G. Munns.

The minutes of the last meeting were read and approved.

Dean Wahl reported that the Journal has contributed space for an advertisement pertaining to the library of the University of Kansas School of Medicine, that this is being regularly published, and that he believes it will be of

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OBSTETRICS—Two Weeks Intensive Course will be offered twice during the year 1942, dates to be announced. Informal Course every week.

OTOLARYNGOLOGY—Two Weeks Intensive Course will be offered twice during the year 1942, dates to be announced. Clinical and Special Courses starting every week.

OPHTHALMOLOGY—Two Weeks Intensive Course will be offered twice during the year 1942, dates to be announced. Informal Course every week.

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assistance in promoting the use of the library by the members of the Society. He reported also that arrangements have been made through the Wyandotte County Medical Society to have its present library and the funds available for book purchases from its occupational tax law to be transferred to the medical school, and that this will aid materially in providing additional library facilities.

Dr. Stoland reported plans are being considered for remodeling the present geology building at the University of Kansas, in Lawrence, and for housing certain portions of the Lawrence division of the medical school therein after the geology department is transferred to the industrial building which is to be constructed. Dr. Longwood was asked to represent the committee in providing any help possible for it to provide in this connection.

Dean Wahl described the courses on medical economics which have been presented at the medical school during recent years, and stated he intended to discuss the plans for this year's course with Dr. F. L. Loveland, of Topeka, within the near future. The committee offered its assistance on this subject in any way desired.

Dean Wahl commented on the advantages which exist in being able to place undergraduate students with practicing physicians during summer periods and school holidays and requested suggestions as to how this program might be expanded. A suggestion was made that the Councilors of the Society could assist in placing students for this purpose, and that it believed they will be glad to assist on this in any way they can.

The post graduate course presented each year at the medical school was discussed, and the committee offered to assist in any way desired in promoting interest and attendance at this event.

Dean Wahl described the plans which are being considered for the construction of a student dormitory and union building at the Kansas City division of the medical school. Explanation was made that the construction of a building of this kind is possible under a law passed at the last session of the Legislature, and that the plan being considered includes arrangements for part of the financing of the building to be obtained from a bond issue and part from alumni and other contributions. Dean Wahl stated the assistance of the committee would be helpful in obtaining contributions for this purpose from members of the Society. The committee offered its help in any way desired.

Student admittance was then discussed. Dean Wahl and Dr. Stoland reported on the present number of students enrolled at the medical school, the procedures utilized for the selection of students, and the plans which are being made to increase facilities in order that additional students may be accepted.

The committee then had lunch as guests of the medical school, and following this Dean Wahl accompanied the committee on a tour of the school.

Adjournment followed.

OSTEOPATHS

Mr. E. H. Hatcher, the attorney for the Kansas State Osteopathic Association, recently filed a motion with the Kansas Supreme Court for rehearing of the cases of State of Kansas, ex rel., vs. C. V. Moore and the case of State of Kansas, ex rel., vs. O. E. Muecke, in the Barber and Pratt District Courts respectively, upon which an opinion was handed down by the Court on October 11.

The motion for rehearing states that the osteopaths believe the court is in error in its opinion; that osteopaths desire to practice forms of medicine and surgery in addition to osteopathy; and that the osteopaths wish to have an opportunity to re-argue the case.

The Supreme Court has not as yet acted upon the motion.

APPOINTMENT

Dr. C. D. Blake recently announced the appointment of Dr. Walter Stevenson of Norton as chairman of the Society Committee on Medical Economics.

Dr. Stevenson takes the place of Dr. Alza M. McDermott of Ellis who formerly was the chairman of this committee and who has moved to California.

BOARD OF HEALTH

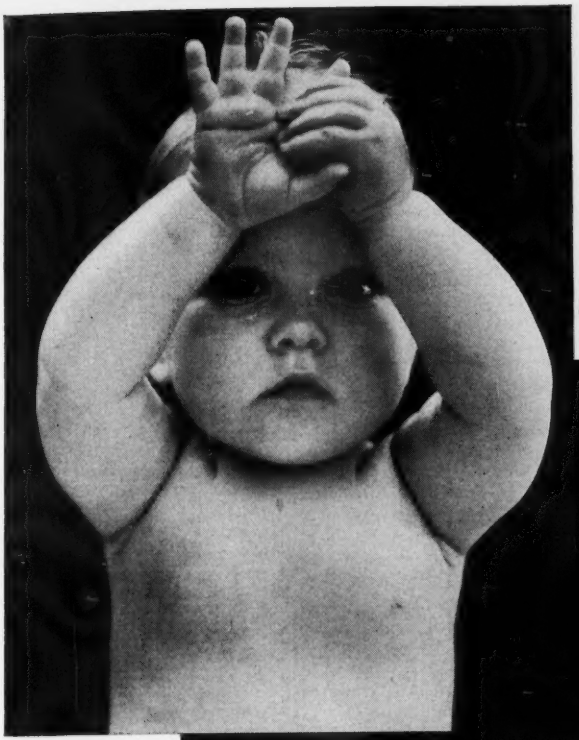
Two announcements of interest were made by the Kansas State Board of Health during the past month:

Mr. Roy Oxendale, who formerly was Topeka representative of the United Press, has been employed by the Kansas State Board of Health to serve as director of a new division on public health information. It is planned that this division will engage in extensive lay educational programs pertaining to exhibits, movies, pamphlets, radio programs, news releases and similar activities on public health.

Governor Payne H. Ratner has made arrangements for the division of food and drug, milk sanitation, director of local health service, director of public relations, director of health education, the accident statistician and some of the division of vital statistics to occupy space in the State House formerly occupied by the State Department of Vocational Education, in order that the crowded conditions which have existed in the Board of Health offices may be relieved. The Board of Health, therefore, now has two separate offices in the State House and considerable space in the National Reserve Building in Topeka.

SECRETARIES CONFERENCE

The following program was presented at the annual Conference of Secretaries of Constituent State Medical Associations sponsored by the American Medical Association and held in Chicago, on November 14 and 15: Address—Frank H. Lahey, President of the American Medical Association; "The United States Army and Medical Preparedness"—James C. Magee, Surgeon General of the United States Army; "The Federal Security Agency and Medical Preparedness"—Watson Miller, Assistant Administrator of the Federal Security Agency; Address—Fred W. Rankin, President-Elect of the American Medical Association; "Social Security Medical Problems in Illinois"—Charles H. Phifer, President of the Illinois State Medical Society; Principles Involved in Medical Service and Group Hospitalization Plans"—Stanley B. Weld, Editor-in-Chief of the Connecticut State Medical Journal—Peter Irving, Secretary of the Medical Society of the State of New York; "Industrial Health: Progress and Prospects"—C. M. Peterson, Secretary of the Council on Industrial Health of the American Medical Association; "How Can the State Medical Journal Best Serve Organized Medicine?"—Wingate M. Johnson, Editor of the North Carolina Medical Journal; "The Responsibilities of the Editorial Staff of a State Medical Journal"—Robert N. Nye, Editor of the New England Journal of Medicine; Address—Irvin Abell, Chairman of



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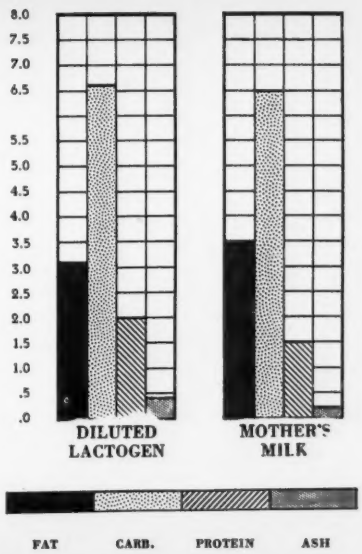

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the Committee on Medical Preparedness of the American Medical Association and Chairman of the Health and Medical Committee of the Federal Securities Agency; "The Role of the Medical Profession in the Selective Service System"—Lewis B. Hershey, Director of the Selective Service System; "Medical Aspects of Civilian Defense"—George Baehr, Chief Medical Officer of the Office of Civilian Defense.

Representatives from Kansas who attended the meeting were: Dr. C. D. Blake of Hays, Dr. John M. Porter of Concordia, Dr. L. E. Eckles of Topeka, Mr. Jack Austin of Wichita, and Mr. C. G. Munns of Topeka.

REHABILITATION

The Kansas State Board of Health is sponsoring a program wherein assistance will be provided in the rehabilitation of selective service registrants who have been rejected for military service by reason of physical disabilities.

Mr. George Lerrigo, who is the son of Dr. C. H. Lerrigo, Executive Secretary of the Kansas Tuberculosis and Health Association and who has been trained in rehabilitation work, will be the director of the program.

Activity is presently being commenced on the program in the preparation of studies and statistical information and in advising registrants who are afflicted with diseases of the lungs and with venereal disease as to their need for medical assistance. It is planned that the program will be extended into other fields as soon as additional facilities make that result possible.

The program will be operated in conjunction with various Society committees on matters of state-wide interest and with the county medical societies on a local basis.

HOSPITAL MEETING

The Kansas Hospital Association held its annual meeting in Topeka on November 12-13.

The subjects and speakers on the program were: "Problems of the Dietitian in a Small Hospital"—Martha Richardson, A.B., M.S., Dietitian, Wm. Newman Memorial Hospital, Winfield; "Problems of the Medical Staff"—T. R. Ponton, M.D., Director Hospital Management, Chicago, Illinois; "Some Problems of the Nursing Schools in Kansas"—Dorothy Jackson, R.N., State Inspector, School of Nursing, Emporia; "The Management of Psychiatric Patients in a General Hospital"—Lewis L. Robbins, M.D., The Menninger Clinic, Topeka; Roundtable—Discussion supervised by T. R. Ponton, M.D., Editor, Hospital Management, Chicago, Illinois; "Relation of the Radiologist to the Hospital"—C. H. Warfield, M.D., Wichita; "Problems Facing Our State"—Senator Kirke W. Dale, Arkansas City; "Voluntary Action Works"—Ray F. McCarty, Director, Group Hospital Service, Inc., St. Louis, Missouri; "America Faces a World Crisis"—Bertram W. Maxwell, Professor of Political Science, Washburn Municipal University, Topeka.

A business session was also held wherein the possibility of instituting a group hospitalization program in this state was discussed.

BLIND PROGRAM

Dr. H. L. Kirkpatrick, Supervising Ophthalmologist for the Kansas State Board of Social Welfare, recently issued the following cumulative report as of September 30, 1941, on examination and treatment furnished under the Kansas blind program:

PROGRESSIVE REPORT

Total number of individuals examined	4160
No. of eye examinations approved for A.B.	2420
No. of individuals ineligible for A.B. thru Ex.	1734
No. of Re-Ex. made and fee allowed	410

RESTORATION OF SIGHT

Total number of cases eligible for treatment	1051	
No. of cases in which treatment has been completed	516	
No. still elig. for A.B. after treatment	197	
No. ineligible for A.B. after treatment	319	
No. of cases did not rec. tr. for unknown reasons	246	
No. of cases did not rec. tr. because of: (Death, refused treatment, not physically able, etc.)	163	
No. of cases under treatment	126	
No. of completed treatment cases during September	10	
Cases still eligible	5	
Cases ineligible	5	
Total Amount paid on cases complete this month		$ 844.86
Doctors' Fees	65%	
Hospital Fees	26%	
Optical	5%	
Drugs	2%	
Total amount paid for Treatments since initiation of program		$58,943.70

PREVENTION OF BLINDNESS

Total number of cases eligible for treatment	528	
No. of cases in which treatment has been completed	314	
No. elig. for A.B. after treatment	4	
No. still inelig. after treatment	310	
No. of cases did not rec' tr. for unknown reasons	77	
No. of cases did not rec' tr. because of: (Death, refused treatment, cases inactive for public assist., etc.)	25	
No. of cases under treatment	112	
No. of completed treatment cases during the month	5	
Cases eligible for A.B.	1	
Cases ineligible	4	
Total amount paid on cases completed this month		$ 185.45
Doctors' fees	82%	
Hospital fees	12%	
Optical	2%	
Drugs	3%	
Total amount paid for treatment since initiation of program		$16,024.23

RESIGNATIONS

Dr. Richard F. Boyd who has been Director of Local Health Services of the Kansas State Board of Health during the past four years, recently resigned his position. Dr. Boyd will move to Milwaukee, Wisconsin, where he will become Reginal Medical Officer for the Farm Security Administra-

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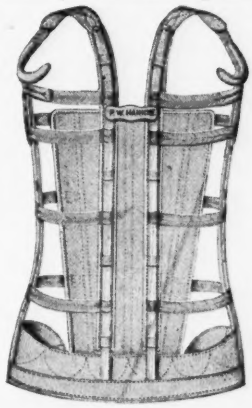

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Dr. C. B. Stephens who has been city health officer of Topeka for the past five years and Dr. Ragnar T. Westman who has been city health officer of Kansas City since 1939 also recently resigned their positions in that capacity.

MEMBERS

Dr. W. M. Mills of Topeka was elected as Governor of the American College of Surgeons at the annual meeting of that organization held in Boston, Massachusetts on November 3-7. Other members who attended from Kansas were as follows: Dr. C. F. Taylor of Norton; Dr. Cecil Snyder of Winfield; Dr. L. W. Reynolds of Hays; Dr. T. P. Butcher of Emporia; Dr. Ray West of Wichita, Dr. M. B. Miller of Topeka, and Dr. G. O. Speirs of Spearville.

Dr. Paul E. Craig of Coffeyville was a speaker at the meeting of the Mississippi Valley Medical Editor's Association held in Cedar Rapids, Iowa, on October 1. Dr. Craig spoke on "Science and Art in Medical Writing."

Dr. Benjamin G. Dyer formerly of Topeka has located in Manhattan, where he will be associated with Dr. L. G. Balding.

Dr. H. O. Loyd, son of Dr. Perry A. Loyd of Salina, who was formerly in Topeka, is now located in Salina. Dr. Loyd will also practice in Culver two days each week.

Dr. J. A. McLaughlin has returned to Greensburg, after serving for some time as a lieutenant in the Medical Reserve Corps of the Army at Lake Itaska, Minnesota.

The article on "Treatment of Cerebral Palsy" by Dr. M. E. Pusitz of Topeka which was published in the February issue of the Journal is to be re-printed in the Spastic Review, which is published in Wichita.

COUNTY SOCIETIES

The Franklin County Medical Society held a meeting in Ottawa on October 29. Speakers were Dr. F. C. Beelman of Topeka, who spoke on "The Program and Policies of the Kansas State Board of Health" and Dr. Charles A. Hunter of Topeka, who spoke on "Public Health Laboratory."

The Lyon County Medical Society held a meeting in Emporia on November 4. Dr. Frank Foncannon of Emporia gave a paper on "Perforated Peptic Ulcer," using slides for the illustration of his talk.

The Pratt County Medical Society held a dinner meeting in Pratt on October 24, with the members of the Pawnee County Medical Society as guests. Dr. James W. Shaw of Wichita spoke on "The Physician and the Insurance Agent" and Dr. C. A. Hellwig of Wichita spoke on "Medical Illustrations."

The Sedgwick County Medical Society held a meeting in Wichita on November 4. Dr. Frank R. Teachenor of Kansas City, Missouri, spoke on "Head Injuries."

The Shawnee County Medical Society held a dinner meeting in Topeka on November 3. Dr. Graham Asher of Kansas City, Missouri, spoke on "Clinical Factors that Influence Digitalis Administration."

The Wyandotte County Medical Society held a symposium on Therapy at the meeting in Kansas City on October 21. Speakers were: Dr. Alfred Steinzeig of Kansas City, who spoke on "Vitamine B Therapy"; Dr. D. N. Medearis of Kansas City, who discussed "Vitamine Requirements of Children"; Dr. Mahlon Delp of Kansas City, who spoke on "The Use of Cevitamic Acid in Treatment of Post Arsphenamin Dermititis"; Dr. L. L. Bresette, Dr. Fred E. Angle, and Dr. H. W. Day, all of Kansas City, who discussed the papers.

The Wilson County Medical Society had as their guests the members of the Auxiliary of that county at a steak dinner at the Wilson County Hospital on October 29 in Neodesha.

The staff meeting of the St. Joseph's Hospital was held in Concordia on November 6. Dr. Wayne Bartlett of Wichita spoke on "The Treatment of Gall Bladder Diseases" and Dr. C. A. Hellwig of Wichita spoke on "Autopsies." Members from Smith, Jewell, Mitchell, Republic, Washington, Marshall, Clay, Ottawa, Shawnee and Cloud counties attended the meeting.

BOOK NOOK

BOOK REVIEWS

MODERN DERMATOLOGY AND SYPHILOLOGY —S. William Becker, M.D., and Macimillian E. Obermayer, M.D. Published by the J. B. Lippincott Company of Philadelphia, and priced at $12.00. The book contains 871 pages, well indexed and with a splendid bibliography. The authors have presented a complete volume of modern diagnosis and treatment of dermatology and syphilology which will be of great assistance to the student and to the medical practitioner as well as to the postgraduate student and the specialist. The material is primarily the ideas of the authors, and secondarily those of other workers in the field. In as much as the authors are Assistant Professors of Dermatology and Syphilology at the Kuppenheimer Foundation, of the University of Chicago, they have been able to give an informative survey of their twelve years of clinical research, supplementing rather than replacing orthodox treatments of disease complexes. Modern methods are explained in detail, and old methods are criticized only

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wherein the modern methods have been tested and proven of superior value.

CANCER IN CHILDHOOD, A Discussion of Certain Benign Tumors—Harold W. Dargeon, M.D., F.A.A.P., Attending Pediatrician of the Memorial Hospital for Cancer and Allied Diseases of New York. Published by the C. V. Mosby Company of St. Louis and priced at $3.00. This small monograph of 114 pages gives a complete survey of malignant diseases of childhood in a symposium form and discusses the various papers written on this subject, as well as the collective efforts and experiences of members of the departments of the Memorial Hospital for Cancer and Allied Diseases of New York. Although cancer is a comparatively rare disease in children, it is an important cause of death and according to the author, appears to be on the increase in the death rate, among individuals below sixteen years of age. This book would be a valuable adjunct to the library shelves of all pediatricians and others interested in this subject.

INFANTILE PARALYSIS—Published by the National Foundation for Infantile Paralysis, Inc. The book is a series of six lectures each discussing the phases of the disease and it is the hope of the organization that thru the publication of these lectures on the subject, much assistance will be given to physicians and health officers, in their efforts in combatting poliomyelitis. The lectures discuss such subjects as the history, etiology, immunology and pathology of the disease and the treatment and rehabilitation of the patient.

BOOKS RECEIVED

ESSENTIALS OF GENERAL SURGERY—Wallace P. Ritchie, M.D., Clinical Assistant Professor of Department of Surgery, University of Minnesota Medical School. Published by the C. V. Mosby Company, St. Louis, Missouri. The book has 813 pages, and 237 illustrations and is priced at $8.50.

A TEXT-BOOK OF PATHOLOGY—Fourth Edition, edited by E. T. Bell, M.D., Professor of Pathology in the University of Minnesota, Minneapolis. Published by the Lea and Febiger Company, Philadelphia, the book has 431 engravings, two color plates and is priced at $9.50.

THE NEW INTERNATIONAL CLINICS — Volume III, New Series Four, published by the J. B. Lippincott Company of Philadelphia and edited by George Morris Piersol, M.D., Professor of Medicine, Graduate School of Medicine, University of Pennsylvania, Philadelphia.

THE NEW INTERNATIONAL CLINICS, Volume II, New Series Four, 1941—Published by the J. B. Lippincott Company of Philadelphia, Pa. Edited by George Morris Piersol, M.D., Professor of Medicine, Graduate School of Medicine, University of Pennsylvania, Philadelphia, Pa., with the collaboration of Francis Gilman Blake, M.D., Russell L. Cecil, M.D., Vernon C. David, M.D., Nicholson Joseph Eastman, M.D., Karl Musser Houser, M.D., William John Kerr, M.D., John W. McNee, D.S.O., M.D., Jonathan C. Meakins, M.D., George Richards Minot, M.D., John Walker Moore, M.D., John Herr Musser, M.D., Lewis Pollock, M.D., Isidor S. Ravdin, M.D., Borden Smith Veeder, M.D., George Barklay Wallace, M.D., Russell M. Wilder, M.D., and Alan C. Woods, M.D. Containing 299 pages.

X-RAY THERAPY OF CHRONIC ARTHRITIS (Including the X-Ray Diagnosis of the Disease)—Karl Goldhamer, M.D., Associate Roentgenologist, St. Mary's Hospital and Quincy X-Ray and Radium Laboratories, Formerly Roentgenologist, University of Vienna; Honorary member, Missippi Valley Medical Society. Published by the Radiological Review Publishing Co., Quincy, Illinois, priced at $2.00. Contains 131 pages illustrated.

ACCIDENTAL INJURIES, The Medico-Legal Aspects of Workmen's Compensation and Public Liability—Henry H. Kessler, M.D., Ph.D., F.A.C.S., Medical Director New Jersey Rehabilitation Clinic, Formerly Medical Advisor New Jersey Workmen's Compensation Bureau. Second Edition published by the Lea & Febiger Company, Philadelphia, Pa. 1941. Priced at $10.00. Contains 202 engravings, and 803 pages.

FOREIGN BODIES LEFT IN THE ABDOMEN, The Surgical Problem and the Legal Problem—Harry Stureon Crossen, M.D., School of Medicine, Washington University and David Frederic Crossen, LL.B., School of Law, Washington University, St. Louis, Missouri. Published by the C. V. Mosby Company, St. Louis, 1940. Priced at $10.00. Contains 212 illustrations, four color plates and 762 pages.

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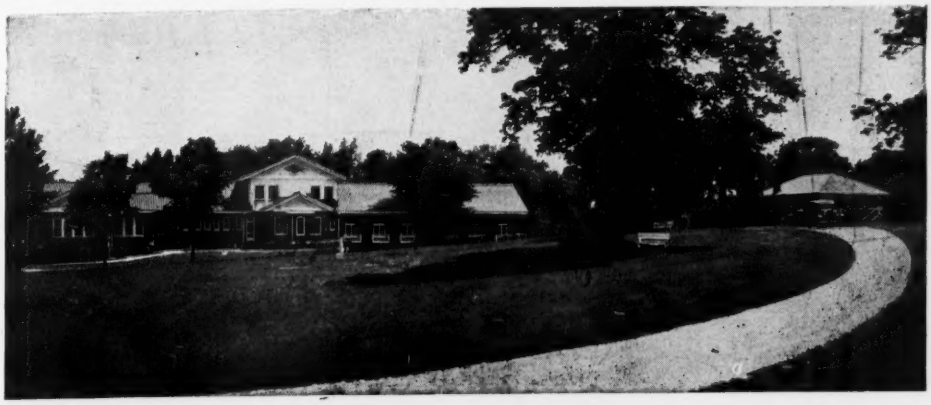

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ANNOUNCEMENT

The American Urological Association offers an annual award "not to exceed $500.00" for an essay (or essays) on the result of some specific chemical or laboratory research in urology. The amount of the prize is based on the merits of the work presented, and if the committee on scientific research deem none of the offerings worthy, no award will be made. Competitors shall be limited to residents in urology in recognized hospitals and to urologists who have been in such specific practice for not more than five years.

Essays shall be in the hands of the Secretary, Dr. Clyde L. Deming, 789 Howard Avenue, New Haven, Connecticut, on or before April 1, 1942.

The Second American Congress of Obstetrics and Gynecology will be held in St. Louis, Missouri, on April 6-10, 1942.

KANSAS MEDICAL ASSISTANTS

The Sedgwick County Medical Assistants Society met on October 15 in Wichita. Mrs. Rene Gouldner, Wichita Chairman of the British War Relief Committee for Sedgwick County, spoke on the local and national work of that organization.

The Cowley County Medical Assistants Society will entertain the members of the Sedgwick County Medical Assistants Society on November 14 at the Arkansas City Country Club. Speakers will be Dr. J. V. VanCleve of Wichita, Dr. C. C. Hawke of Winfield, and Dr. W. G. Weston of Arkansas City. At the October 23 meeting of the organization, held in Arkansas City, Mr. Grant Acton spoke on "Collections".

The Topeka Physicians Assistants Society held a meeting at the Pennant Cafeteria on November 3. Miss Elizabeth Snyder a member of the staff of the division of the Blind of the Kansas State Board of Social Welfare spoke on "Conservation of Eyesight." The next meeting will be held on December 1 and will be a Christmas party. The society has planned to adopt a needy family for Christmas.

A petition for a charter has been received from the Atchison Medical Assistants Society, which was organized on June 3 with thirteen members. The following were elected at the meeting held September 23: President, Miss Rosalyn Lieberman; Vice-President, Miss Helen Tucker; Secretary-Treasurer, Miss Doris Van Welden.

NOTICE

Annual State dues of the Kansas Medical Assistants Society, of fifty cents, are now due and payable to your local secretary or to Mrs. Mildred McClure, Recording Secretary, 322 Brotherhood Building, Kansas City, Kansas.

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1. Knight, F., and Shelanski, H. A., "Treatment of Acute Anterior Urethritis with Silver Picrate," Am. J. Syph., Gon. & Ven. Dis., **23**, 201 (March), 1939.

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AUXILIARY

PRESIDENT'S MESSAGE

Our first and second vice-presidents, together with the councillors are expected to assist, in every way possible, our state chairman Mrs. T. D. Blasdel. Our national chairman on organization gives us this slogan: "Every doctor's wife in health defense." A larger membership is essential for several reasons—

1. Doctors' wives need authentic information on health problems.
3. Doctors' wives are needed in health defense.
3. Income for the auxiliary should be increased by increasing membership rather than by dues.

Because of the critical illness of Mrs. Blasdel's mother she needs the help not only of those directly on the organization committee but by every auxiliary in the state. We strongly urge that they increase not only their own membership but be active in organizing new groups. Whenever an auxiliary has an interesting meeting, be sure to send an account of it to Mrs. Ransley Miller. This will help to sell our organization to non-members.

Let us not forget the families of the doctors who are in military service, especially at Thanksgiving time. This is one big way in which we can foster greater friendships and mutual helpfulness with one another.

As this holiday season approaches let us count our many blessings and be thankful that we live in Kansas.

Sincerely,

Mrs. W. Y. Herrick.

NUTRITION

"Dr. Russell M. Wilder was the keynote speaker in the two-day meeting on Nutrition in Relation to National Defense called by Gov. Payne Ratner. He was introduced by Dr. Clyde D. Blake, of Hays, president of The Kansas Medical Society.

The sessions today, under the direction of Dr. Margaret M. Justin, dean of the Division of Home Economics, Kansas State College, will work out an active health campaign for the state.

If twenty-eight per cent of the young men aged twenty-one to thirty-five are rated in class F-4 as unfit for military service, it is evident that physical fitness of the nation is equally impaired," Dr. Wilder declared.

More than forty per cent of the nation receive inadequate incomes for proper diet, according to a 1936 survey, yet a minimum of thirty cents a day is necessary for adequate food per person, he said.

The statement that 45,000,000 Americans are undernourished has been challenged," he said, "but it would be closed to 90,000,000 if we measured each person against the 'gold standard' of proper nutriants."

In presenting statistics to show the need of a vigorous health thru nutrition program, Dr. Wilder pointed out that nutrition is a problem of all income groups, not alone from the standpoint of final disease but from sub-health, functional disorders, nervousness, fatigue and worry."—From the Topeka Daily Capital.

MEDICAL ADVISERS TO THE NAVY

Three physicians have been appointed as consultants to the medical department of the United States Navy, newspapers reported October 15. They are Drs. Frank H. Lahey, Boston, President of the American Medical Association; Donald C. Balfour, director of the Mayo Foundation, Rochester, Minnesota, and Wilbur A. Sawyer, New York, director of the International Health Division of the Rockefeller Foundation.—Journal of the American Medical Association.

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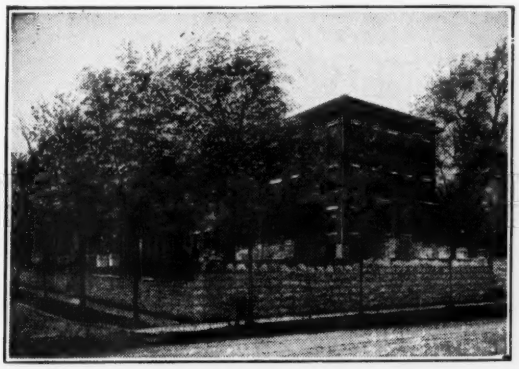

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INDEX TO ADVERTISERS

American Optical Company VI
Balyeat Hay Fever & Asthma Clinic III
Camp Company, The S. H. V
Coca-Cola Company, The 495
Cook County Graduate School of Medicine . . 487
Corn Products Refining Company 481
Grandview Sanitarium 491
Hanicke Mfg. Company, The P. W. 491
Holland-Rantos Company, The XIII
Hyson, Westcott & Dunning 487
Isle Company, The W. E. 500
Johnson Hospital 500
Lattimore Laboratories III
Library, University of Kansas XIV
Lilly & Company, Eli XII
Luzier's Cosmetics & Perfumes 497
Major Clinic 499
Mead Johnson & Company XVI
Medical Protective Company 491
National Association of Chewing Gum Mfg. . . 487
Nestle's Milk Products, Inc. 489
Oakwood Sanitarium 495
Parke, Davis and Company IX
Petrogalar Laboratories II
Philip Morris & Company, Inc. 493
Physicians Casualty Association XIV
Quinton-Duffens Optical Company 483
Radium and Randon Corporation 500
Ralph Sanitarium, The 498
Robinson Clinic, The 494
S. M. A. Corporation XV
Smith-Dorsey Company, The 483
Smith, Kline & French Laboratories 485
Squibb & Sons, E. R. 479
Swope Radiological Clinic 499
Trowbridge Training School 500
Upjohn Company XI
Winthrop Chemical Company, Inc. VII
Woodcroft Hospital 500
Wyeth & Bros., Inc., John 496
Zemmer Company, The 498

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